

ABSTRACTS

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# Policy Research Working Paper Series

Numbers 2934–3008

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1. **Prepare a 250–300 word abstract.** The abstract should set out the main questions addressed in the paper and the key findings, putting them (if appropriate) in the context of the relevant literature. For empirical papers, briefly describe the data, including such details as the period covered, the countries or country groups included, the size of the sample, and the type of survey, as appropriate. *The abstract will be published as submitted.* To ensure maximum impact for your work, consult existing working paper abstracts and test your abstract by asking a colleague who is not familiar with the paper to read it before submission.

2. **Obtain clearance memoranda.** You will need two types of clearance memoranda.

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DECPO staff screen each paper, may recommend changes in the paper to the submitting author, and advise the submitting manager and author whether the paper has been accepted for publication in the series. **DECPO does not edit or revise the paper.** The author receives a maximum of 100 printed copies of the paper. The paper is released on the Web and printed within approximately a month of its acceptance in the series.

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### 2934. After the Big Bang? Obstacles to the Emergence of the Rule of Law in Post-Communist Societies

Karla Hoff and Joseph E. Stiglitz  
(December 2002)

With the collapse of communism in Eastern Europe and the Soviet Union in 1989–91, many economic reformers supported “Big Bang” privatization—the rapid transfer of state-owned enterprises to private individuals. It was hoped that Big Bang privatization would create the conditions for a demand-led evolution of legal institutions. But there was no theory to explain how this process of institutional evolution, including a legal framework for the protection of investors, would occur and, in fact, it has not yet occurred in Russia, in other former Soviet Union countries, in the Czech Republic, and elsewhere. A central reason for that, according to many scholars, is the weakness of the political demand for the rule of law.

To shed light on this puzzle, Hoff and Stiglitz consider a model where the conditions for the emergence of the rule of law might be interpreted as highly favorable. Individuals with control rights over privatized assets can collectively bring about the rule of law simply by voting for it. These individuals are concerned with the wealth they can obtain from the privatized assets, and have two alternative strategies: building value and stripping assets. Building value under the rule of law yields higher benefits to a majority than stripping assets under no rule of law. But uncertainty about when the rule of law will be established may lead some individuals to choose an economic strategy—stripping assets, including converting corporate assets to private use—that gives them an interest in postponing the establishment of the rule of law. And therefore in the succeeding period, the rule of law may again not be in place, and so again individuals may strip assets. If they do, some of them may again have an interest in postponing the establishment of the rule of law. And so a weak demand for the rule of law can persist.

The contribution of the paper is to show that the view that once stripping has occurred, the strippers will say “enough” and by supporting the rule of law seek public protection of their gains, is flawed. By

abstracting from the obvious problem that strippers who obtain great wealth can buy special favored treatment from the state, the model highlights two less obvious flaws in the optimistic view about the Big Bang: First, that the asset-strippers can remove the assets from exposure to further stealing, and in that case they do not care about public protection for their gains. And second, that the perceived justice of a system is important to gaining the cooperation of those involved in the process of producing the rule of law (judges, regulators, jurors, potential offenders). Accordingly, state protection of asset strippers may be infeasible, even under an ostensible rule of law. Knowing this, strippers will be less supportive of the rule of law.

The model makes one further point: what is at issue is how fast the rule of law will emerge. The presumption of the Big Bang strategy was that the faster state property was turned over to private hands, the faster a true market economy, including the rule of law, would be established. The analysis shows that, even if eventually a rule of law is established, the Big Bang may put into play forces that delay the establishment of the rule of law. The tortoise once again may beat the hare!

Finally, Hoff and Stiglitz analyze the impact of certain policies, such as the particular structure of privatization and monetary policy. Policies that enhance the returns to investment and wealth creation rather than asset stripping not only serve to strengthen the economy in the short run, but enhance political support for the rule of law and thus put it in a position for stronger long-term growth.

This paper—a product of the Investment Climate Team, Development Research Group—is part of a larger effort in the group to understand the evolution of property rights institutions. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Anna Bonfield, room MC3-354, telephone 202-473-1248, fax 202-522-3518, email address [abonfield@worldbank.org](mailto:abonfield@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The authors may be contacted at [khoff@worldbank.org](mailto:khoff@worldbank.org) or [jes322@columbia.edu](mailto:jes322@columbia.edu). December 2002. (44 pages)

### 2935. Missed Opportunities: Innovation and Resource-Based Growth in Latin America

William F. Maloney  
(December 2002)

Latin America missed opportunities for rapid resource-based growth that similarly endowed countries—Australia, Canada, Scandinavia—were able to take advantage of. Fundamental to this poor performance was deficient technological adoption driven by two factors. First, deficient national “learning” or “innovative” capacity, arising from low investment in human capital and scientific infrastructure, led to weak ability to innovate or even take advantage of technological advances abroad. Second, the period of inward-looking industrialization discouraged innovation and created a sector whose growth depended on artificial monopoly rents rather than the quasi-rents arising from technological adoption, and at the same time undermined resource-intensive sectors that had the potential for dynamic growth.

This paper—a product of the Office of the Chief Economist, Latin America and the Caribbean Region—was prepared as a background paper for the region’s flagship report, *From Natural Resources to the Knowledge Economy* (2001). Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Patricia Soto, room I8-018, telephone 202-473-7892, fax 202-522-7528, email address [psoto@worldbank.org](mailto:psoto@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The author may be contacted at [wmaloney@worldbank.org](mailto:wmaloney@worldbank.org). (40 pages)

### 2936. Industrial Ownership and Environmental Performance: Evidence from China

Hua Wang and Yanhong Jin  
(December 2002)

Wang and Jin explore the differences in pollution control performance of industries with different types of ownership in China—state-owned (SOE), collectively- or community-owned (COE), privately owned (POE), companies with foreign direct investment (FDI), and joint ventures.

About 1,000 industrial firms in three provinces of China were surveyed, and detailed 1999 firm-level information was obtained.

The authors analyzed the differences between firms in receiving and reacting to environmental regulatory enforcement, community pressure, environmental services, as well as in the firm's internal environmental management among the different types of ownership. The authors also conducted econometric analyses on the determinants of pollution discharge performance.

The results show that foreign direct investment and collectively-owned enterprises have better environmental performances in terms of water pollution discharge intensity, while state-owned enterprises and privately owned enterprises in China are the worst performers. The results also suggest that collectively-owned enterprises in China do internalize environmental externalities.

This paper—a product of Infrastructure and Environment, Development Research Group—is part of a larger effort in the group to study environmental regulation in developing countries. The study was partially funded by the Bank's Research Support Budget under the research project "Understanding and Improving Environmental Performance of China's Township and Village Industrial Enterprises." Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Yasmin D'Souza, room MC2-622, telephone 202-473-1449, fax 202-522-3230, email address [ydsouza@worldbank.org](mailto:ydsouza@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. Hua Wang may be contacted at [hwang1@worldbank.org](mailto:hwang1@worldbank.org). (28 pages)

### **2937. The Determinants of Government Environmental Performance: An Empirical Analysis of Chinese Townships**

Hua Wang and Wenhua Di  
(December 2002)

This paper explores the determinants of government environmental performance at the local level. Chinese township governments, the lowest level in the hierarchical government structure, were selected for this exercise. The performance indicators used in the analyses include the

efforts of enforcing government environmental regulations and of providing environmental services to polluting enterprises. The performance determinants identified include environmental performance of upper-level governments, local development status, industrial employment, income of workers in polluting enterprises, local environmental quality, and public pressure for environmental quality improvement. A survey of 85 townships and interviews of 151 township government leaders were conducted in three provinces of China. The statistical results show that:

- The environmental performance of upper-level governments in China strongly and positively influences the environmental efforts of the township governments.

- Public pressure has created incentives for the township governments to improve their efforts in both enforcing environmental regulations and providing environmental services, while the environmental quality did not show significant impacts.

- Higher employment in industries tends to have a negative influence on the regulatory enforcement, but a positive influence on environmental service provision.

- A higher enforcement effort and a lower service provision are associated with higher wages the workers received from industries. This implies that the industries offering higher wages to the workers are subject to more stringent environmental enforcement but receive less environmental services.

- Richer townships tend to have less regulatory enforcement but better environmental services.

This paper—a product of Infrastructure and Environment, Development Research Group—is part of a larger effort in the group to study environmental regulation in developing countries. The study was partially funded by the Bank's Research Support Budget under the research project "Understanding and Improving Environmental Performance of China's Township and Village Industrial Enterprises." Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Yasmin D'Souza, room MC2-622, telephone 202-473-1449, fax 202-522-3230, email address [ydsouza@worldbank.org](mailto:ydsouza@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. Hua Wang may be contacted at [hwang1@worldbank.org](mailto:hwang1@worldbank.org). (24 pages)

worldbank.org. Hua Wang may be contacted at [hwang1@worldbank.org](mailto:hwang1@worldbank.org). (24 pages)

### **2938. Recurrent Expenditure Requirements of Capital Projects: Estimation for Budget Purposes**

Ron Hood, David Husband, and Fei Yu  
(December 2002)

This paper examines the issue of estimating recurrent costs associated with capital projects in the investment budget. It is intended to help overcome budget planning problems which give rise to the chronic underfunding of maintenance and operating costs typical in some developing economies. The objective is to provide guidance in the preparation of budget submissions so that information on the future recurrent cost implications of today's capital spending is quantified in a way that supports the authorities in making project selection and budget decisions.

The paper is in three parts. The first part outlines some concepts and definitions involved in measuring recurrent costs. The second part provides stylized examples of individual projects. And the third part presents some rough empirical guidance drawn from a sample of actual investment projects.

This paper—a product of the Poverty Reduction and Economic Management Sector Unit, Europe and Central Asia Region—is part of a larger effort in the Bank to improve the management of public finances. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Mickey Galatis, room H4-312, telephone 202-473-1177, fax 202-614-1499, email address [mgalatis@worldbank.org](mailto:mgalatis@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. Ron Hood may be contacted at [rhoo@worldbank.org](mailto:rhoo@worldbank.org). (13 pages)

### **2939. School Attendance and Child Labor in Ecuador**

Gladys López-Acevedo  
(December 2002)

López-Acevedo uses the Ecuador Living Standards and Measurement Surveys (LSMS 1998 and 1999) to analyze the

characteristics and determinants of child labor and schooling. She shows how interventions at the level of adults affect child labor and school enrollment. For example, an employment policy encouraging employment in the formal modern sector reduces child labor and increases schooling. In rural areas, a wage policy (increase in the wage of the household head) has positive implications for the children, while it is less effective in urban areas.

This paper—a product of the Economic Policy Sector Unit, Latin America and the Caribbean Region—is part of a larger effort in the region to reduce poverty and inequality through human capital investment. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Michael Geller, room I4-046, telephone 202-458-5155, email address [mgeller@worldbank.org](mailto:mgeller@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The author may be contacted at [gacevedo@worldbank.org](mailto:gacevedo@worldbank.org). (25 pages)

#### 2940. The Potential Demand for an HIV/AIDS Vaccine in Brazil

Hillegonda Maria Dutilh Novaes, Expedito J. A. Luna, Moisés Goldbaum, Samuel Kilsztajn, Anaclaudia Rossbach, and José de la Rocha Carvalheiro (December 2002)

This study assesses the potential demand by the public sector for a preventive HIV/AIDS vaccine in Brazil and the costs of alternative strategies for a vaccination program. Brazil has a mature AIDS epidemic: the percent of the population living with HIV or AIDS (about 0.6 percent of adults) is not as high as in other severely affected developing countries, but infection rates in specific risk groups in the population are very high and HIV has spread beyond these groups into the general population of low-risk individuals.

Preventive HIV/AIDS vaccines are still in the testing stage. The characteristics of the first vaccines developed, in terms of their efficacy, duration of effectiveness, ease of administration, and price, are still unknown. But the potential benefits of such a vaccine in Brazil would be high. The study reviews the cost and impact of HIV/AIDS in Brazil, in terms of disease and economic burden, as a proxy for the benefits of an HIV/AIDS vaccine. The epide-

miology of AIDS and Brazil's experience with immunization coverage with other vaccines are used to assess the number of vaccines, delivery strategies, and possible costs of an HIV/AIDS immunization program in Brazil, assuming the availability of a 100 percent effective AIDS vaccine that lasts a lifetime under different pricing and dosing assumptions.

A low-cost, highly effective vaccine would likely be affordable to an upper-middle-income country like Brazil and yield large benefits from a policy of universal, publicly subsidized immunization. But if prices are higher and the impact less favorable, the costs and effects would have to be compared with other AIDS prevention programs or other health interventions. Both political and economic considerations will likely figure into public policy on HIV/AIDS vaccination, when such a vaccine is developed.

This paper—a product of Public Services, Development Research Group—is part of the research project on "The Economics of an HIV/AIDS Vaccine in Developing Countries: Potential Impact, Cost-Effectiveness and Willingness to Pay," sponsored by the European Commission and the Development Research Group of the World Bank. The project was launched in response to recommendations of the World Bank's AIDS Vaccine Task Force. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Hedy Sladovich, room MC3-607, telephone 202-473-7698, fax 202-522-1154, email address [hsladovich@worldbank.org](mailto:hsladovich@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. Hillegonda Maria Dutilh Novaes may be contacted at [hidutilh@usp.br](mailto:hidutilh@usp.br). (30 pages)

#### 2941. Income Convergence during the Disintegration of the World Economy, 1919–39

Branko Milanovic (January 2003)

Some economists have argued that the process of disintegration of the world economy between the two world wars led to income divergence between the countries. This is in keeping with the view that economic integration leads to income convergence. The paper shows that the view that the period 1919–39 was associated

with divergence of incomes among the rich countries is wrong. On the contrary, income convergence continued and even accelerated. Since the mid-19th century, incomes of rich countries tended to converge in peacetime regardless of whether their economies were more or less integrated. This, in turn, implies that it may not be trade and capital and labor flows that matter for income convergence but some other, less easily observable, forces like diffusion of information and technology.

This paper—a product of the Poverty Team, Development Research Group—is part of a larger effort in the group to study global inequality. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Patricia Sader, room MC3-556, telephone 202-473-3902, fax 202-522-1153, email address [psader@worldbank.org](mailto:psader@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The author may be contacted at [bmilanovic@worldbank.org](mailto:bmilanovic@worldbank.org). (35 pages)

#### 2942. Why Is Son Preference so Persistent in East and South Asia? A Cross-Country Study of China, India, and the Republic of Korea

Monica Das Gupta, Jiang Zhenghua, Li Bohua, Xie Zhenming, Woojin Chung, and Bae Hwa-Ok (January 2003)

Son preference has persisted in the face of sweeping economic and social changes in China, India, and the Republic of Korea. The authors attribute this to their similar family systems, which generate strong disincentives to raise daughters while valuing adult women's contributions to the household. Urbanization, female education, and employment can only slowly change these incentives without more direct efforts by the state and civil society to increase the flexibility of the kinship system such that daughters and sons can be perceived as being more equally valuable. Much can be done to this end through social movements, legislation, and the mass media.

This paper—a product of Public Services and Rural Development, Development Research Group—is part of a larger effort in the group to study social institutions and development outcomes. Copies

of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Monica Das Gupta, room MC3-633, telephone 202-473-1983, fax 202-522-1153, email address [mdasgupta@worldbank.org](mailto:mdasgupta@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. (36 pages)

### 2943. Capital Flows, Country Risk, and Contagion

Norbert Fiess  
(January 2003)

It has been widely recognized that both country-specific and global factors matter in explaining capital flows. Fiess presents an empirical framework that disentangles the relative weight of country-specific and global factors in determining capital flows. In essence, his approach first separates the common component of emerging country spreads from their country-specific component. The pure country risk and global risk components are then used as explanatory variables to account for the observed pattern of capital flows using multivariate cointegration analyses. The author is able to identify the relative weight of global and country-specific factors in explaining capital flows to Argentina, Brazil, Mexico, and Venezuela in the 1990s. When further decomposing country risk into its determinants, the author finds that within a small system it is possible to jointly identify the determinants of capital flows and sovereign bond spreads. We find that capital flows are driven by country risk and global factors ("contagion" and U.S. long-term interest rates), while country risk is determined by the primary balance-to-GDP ratio (-) and the ratio of public debt to GDP (+).

This paper—a product of the Office of the Chief Economist, Latin America and the Caribbean Region—is part of a larger effort in the region to understand international capital flows. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Ruth Izquierdo, room 18-012, telephone 202-458-4161, fax 202-522-7528, email address [rizquierdo@worldbank.org](mailto:rizquierdo@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The author may be contacted at [nfiess@worldbank.org](mailto:nfiess@worldbank.org). (28 pages)

### 2944. Regulation, Productivity, and Growth: OECD Evidence

Giuseppe Nicoletti and Stefano Scarpetta  
(January 2003)

Nicoletti and Scarpetta look at differences in the scope and depth of pro-competitive regulatory reforms and privatization policies as a possible source of cross-country dispersion in growth outcomes. They suggest that, despite extensive liberalization and privatization in the OECD area, the cross-country variation of regulatory settings has increased in recent years, lining up with the increasing dispersion in growth. The authors then investigate empirically the regulation-growth link using data that cover a large set of manufacturing and service industries in OECD countries over the past two decades and focusing on multifactor productivity (MFP), which plays a crucial role in GDP growth and accounts for a significant share of its cross-country variance. Regressing MFP on both economywide indicators of regulation and privatization and industry-level indicators of entry liberalization, the authors find evidence that reforms promoting private governance and competition (where these are viable) tend to boost productivity. In manufacturing the gains to be expected from lower entry barriers are greater the further a given country is from the technology leader. So, regulation limiting entry may hinder the adoption of existing technologies, possibly by reducing competitive pressures, technology spillovers, or the entry of new high-technology firms. At the same time, both privatization and entry liberalization are estimated to have a positive impact on productivity in all sectors.

These results offer an interpretation to the observed recent differences in growth patterns across OECD countries, in particular between large continental European economies and the United States. Strict product market regulations—and lack of regulatory reforms—are likely to underlie the relatively poorer productivity performance of some European countries, especially in those industries where Europe has accumulated a technology gap (such as information and communication technology-related industries). These results also offer useful insights for non-OECD countries. In particular, they point to the potential benefits of regulatory reforms and privatization, especially in those countries with large technology gaps

and strict regulatory settings that curb incentives to adopt new technologies.

This paper—a product of the Social Protection Team, Human Development Network—is part of a larger effort in the network to understand what drives productivity growth. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact the Social Protection Advisory Service, room G8-138, telephone 202-458-5267, fax 202-614-0471, email address [socialprotection@worldbank.org](mailto:socialprotection@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. Stefano Scarpetta may be contacted at [sscarpetta@worldbank.org](mailto:sscarpetta@worldbank.org). (60 pages)

### 2945. Micro-Finance and Poverty: Evidence Using Panel Data from Bangladesh

Shahidur R. Khandker  
(January 2003)

Micro-finance supports mainly informal activities that often have low market demand. It may be thus hypothesized that the aggregate poverty impact of micro-finance in an economy with low economic growth is modest or nonexistent. The observed borrower-level poverty impact is then a result of income redistribution or short-run income generation.

Khandker addresses these questions using household level panel data from Bangladesh. The findings confirm that micro-finance benefits the poorest and has sustained impact in reducing poverty among program participants. It also has positive spillover impact, reducing poverty at the village level. But the effect is more pronounced in reducing extreme rather than moderate poverty.

This paper—a product of Rural Development, Development Research Group—is part of a larger effort in the group to analyze the impact of targeted programs on the poor. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Dulce Afzal, room J4-284, telephone 202-473-6335, fax 202-676-9810, email address [dafzal@worldbank.org](mailto:dafzal@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The author may be contacted at [skhandker@worldbank.org](mailto:skhandker@worldbank.org). (31 pages)

## 2946. Rapid Labor Reallocation with a Stagnant Unemployment Pool: The Puzzle of the Labor Market in Lithuania

Jan Rutkowski  
(January 2003)

Lithuania is a transition economy undergoing rapid enterprise restructuring associated with substantial job turnover. At the same time, unemployment in Lithuania is high and of long duration. This presents a puzzle: high job turnover epitomizes labor market flexibility, while high unemployment indicates labor market rigidities. What are the reasons behind this paradox? Why do the unemployed not benefit from job opportunities created by high job turnover, which entails high rates of job creation and hiring?

To answer this question, Rutkowski looks at three perspectives on labor market flexibility:

- The macroeconomic perspective—A flexible labor market is one that facilitates full use and efficient allocation of labor resources.
- The worker perspective—A flexible labor market means ease in finding a job paying a wage adequate to the worker's effort and skills.
- The employer perspective—A flexible labor market does not unduly constrain the employer's ability to adjust employment and wages to changing market conditions.

Rutkowski looks at all three dimensions of labor market flexibility by analyzing job reallocation, worker transitions across labor force states, wage distribution, and regulatory constraints faced by employers. He focuses on the issue of job creation and job destruction, using micro level data on all registered firms. He finds that flexibility in one dimension can concur with rigidities in the other. Specifically, employers in Lithuania have a substantial degree of flexibility with employment adjustment coupled with limited flexibility to wage adjustment due to a high statutory minimum wage. The relatively rigid wage structure locks low productivity workers who are preponderant among the unemployed. The low-skilled long-term unemployed have become marginalized and unable to successfully compete for available jobs, while the high job turnover is accounted for largely by job-to-job transitions. As a result, a dynamic labor market coincides with a stagnant unemployment pool.

This paper—a product of the Human Development Sector Unit, Europe and Central Asia Region—is part of a larger effort in the region to examine labor market performance and its contribution to economic growth and poverty reduction. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Jan Rutkowski, room H7-170, telephone 202-458-4569, fax 202-477-3387, email address [jrutkowski@worldbank.org](mailto:jrutkowski@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. (82 pages)

## 2947. Tax Systems in Transition

Pradeep Mitra and Nicholas Stern  
(January 2003)

How have tax systems, whose primary role is to raise resources to finance public expenditures, evolved in the transition countries of Eastern Europe and the former Soviet Union? Mitra and Stern find that: (1) the ratio of tax revenue-to-GDP decreased largely due to a fall in revenue from corporate income tax; (2) the fall in revenue from the corporate income tax led to a decline in the importance of income taxes, notwithstanding a rise in the share of individual income tax; (3) social security contributions together with payroll taxes became less important in the Commonwealth of Independent States; and (4) domestic indirect taxes gained in importance in overall tax revenues.

Apart from the increased role of personal income taxation, these developments go in a direction opposite to those observed in poor countries as they get richer. They show a key aspect of transition, namely a movement from a system where the government exercised a preeminent claim on output and income before citizens had access to the remainder, to one with a greatly diminished role for the public sector, as reflected in a lower ratio of public expenditure to GDP, where the government needs to collect revenue in order to spend.

Can expected levels of public expenditure be financed by the basic instruments of a modern tax system without creating significant distortions in the private sector? The authors suggest that transition countries, depending on their stage of development, should aim for a tax revenue-to-GDP ratio in the range of 22 to 31

percent, comprising value-added tax (6 to 7 percent), excises (2 to 3 percent), income tax (6 to 9 percent), social security contribution together with payroll tax (6 to 10 percent), and other taxes such as on trade and on property (2 percent).

The authors' analysis also sheds light on the links between tax policy, tax administration, and the investment climate in transition countries.

This paper—a joint product of the Office of the Regional Vice President, Europe and Central Asia Region and the Office of the Senior Vice President and Chief Economist, Development Economics—is part of a larger effort in the Bank on the subject of transition meets development. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Sossena Tassew, room H12-220, telephone 202-458-8212, fax 202-522-2758, email address [stassew@worldbank.org](mailto:stassew@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The authors may be contacted at [pmitra@worldbank.org](mailto:pmitra@worldbank.org) or [nsstern@worldbank.org](mailto:nsstern@worldbank.org). (53 pages)

## 2948. The Impact of Contractual Savings Institutions on Securities Markets

Gregorio Impavido, Alberto R. Musalem,  
and Thierry Tresselt  
(January 2003)

Impavido, Musalem, and Tresselt assess empirically the impact of contractual savings institutions portfolios (pension funds and life insurance companies) on securities markets, for example, depth and liquidity in the domestic stock market, and depth in the domestic bond market. They discuss how the institutionalization of savings can modify financial markets through the lengthening of securities' maturities.

The results are the following:

- An increase in assets of contractual savings institutions relative to domestic financial assets has a positive impact on the depth of stock and bond markets on average.
- The impact on stock market depth and liquidity is nonlinear: it is stronger in countries where corporate information is more transparent.
- There is evidence of a significant heterogeneity among countries: contractual

savings have a stronger impact on securities markets in countries where the financial system is market based, pension fund contributions are mandatory, and international transactions in securities are lower.

- The authors do not find that the impact of contractual savings institutions on securities markets is explained by the overall level of development, education, demographic structure or the legal environment.

This paper—a product of the Financial Sector Operations and Policy Department—is part of a larger effort in the department to study the effects of contractual savings on financial markets. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Patricia Braxton, room MC9-904, telephone 202-473-2720, fax 202-522-7105, email address pbraxton@worldbank.org. Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The authors may be contacted at gimpavido@worldbank.org, amusalem@worldbank.org, or ttessel@imf.org. (27 pages)

#### **2949. Intersectoral Migration in Southeast Asia: Evidence from Indonesia, Thailand, and the Philippines**

Rita Butzer, Yair Mundlak  
and Donald F. Larson  
(January 2003)

Using time series data spanning three decades, Butzer, Mundlak, and Larson examine the determinants of sectoral migration in Indonesia, Thailand and the Philippines. They employ a principal components algorithm to address problems associated with trended and intercorrelated explanatory variables. Migration rates in the three countries are low relative to other developing countries with the consequence of persistent intersectoral income differentials. Even so, the rate of migration has been responsive to income ratios in each country. The migration rates were also affected by the absorbing capacity of nonagriculture, as indicated by several measures. In contrast to other studies, policy variables consisting of indicators of physical and human capital had little impact on the migration rate separate from that captured by relative incomes.

This paper—a product of Rural Development, Development Research Group—is

part of a larger effort in the group to assess the role of the rural sector in economic growth. The study was partially funded by the Research Support Budget under the research project “Dynamism of Rural Sector Growth” (RPO 683-06). Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Pauline Kokila, room MC3-604, telephone 202-473-3716, fax 202-522-1151, email address pkokila@worldbank.org. Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The authors may be contacted at rbutzer@fas.harvard.edu, mundlak@agri.huji.ac.il, or dlanson@worldbank.org. (20 pages)

#### **2950. Is the Emerging Nonfarm Market Economy the Route Out of Poverty in Vietnam?**

Dominique van de Walle  
and Dorothyjean Cratty  
(January 2003)

Are the household characteristics that are good for transition to a more diversified market-oriented development process in Vietnam also important for reducing poverty? Or are there tradeoffs? The determinants of both poverty incidence and participation in rural off-farm activities are modeled as functions of household and community characteristics using comprehensive national household surveys for 1993 and 1998. Despite some common causative factors, such as education and region of residence, the processes determining poverty and inhibiting diversification are clearly not the same. Participation in the emerging rural nonfarm market economy will be the route out of poverty for some, but certainly not all, of Vietnam's poor.

This paper—a product of Public Services, Development Research Group—is part of a larger effort in the group to understand how to reduce poverty. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Hedy Sladovich, room MC3-607, telephone 202-473-7698, fax 202-522-1154, email address hsladovich@worldbank.org. Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The authors may be contacted at dvandewalle@worldbank.org or dcratty@worldbank.org. (29 pages)

#### **2951. Land Allocation in Vietnam's Agrarian Transition**

Martin Ravallion and Dominique  
van de Walle  
(January 2003)

While liberalizing key factor markets is a crucial step in the transition from a socialist control-economy to a market economy, the process can be stalled by imperfect information, high transaction costs, and covert resistance from entrenched interests. Ravallion and van de Walle study land-market adjustment in the wake of Vietnam's reforms aiming to establish a free market in land-use rights following de-collectivization. Inefficiencies in the initial administrative allocation are measured against an explicit counterfactual market solution. The authors' tests using a farm-household panel data set spanning the reforms suggest that land allocation responded positively but slowly to the inefficiencies of the administrative allocation. They find no sign that the transition favored the land rich or that it was thwarted by the continuing power over land held by local officials.

This paper—a joint product of the Poverty Team and the Public Services Team, Development Research Group—is part of a larger effort in the group to understand the welfare impacts of major policy reforms. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Hedy Sladovich, room MC3-607, telephone 202-473-7698, fax 202-522-1154, email address hsladovich@worldbank.org. Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The authors may be contacted at mravallion@worldbank.org or dvandewalle@worldbank.org. January 2003. (23 pages)

#### **2952. The Effects of a Fee-Waiver Program on Health Care Utilization among the Poor: Evidence from Armenia**

Nazmul Chaudhury, Jeffrey Hammer,  
and Edmundo Murrugarra  
(January 2003)

This study examines the impact of a fee-waiver program for basic medical services on health care utilization in Armenia. Because of the reduction in public financ-



ing of health services and decentralization and increased privatization of health care provision, private out-of-pocket contributions are increasingly becoming a significant component of health costs in Armenia. To help poor families cope with this constraint, the Armenian government provided a free-of-charge basic package service to eligible individuals in vulnerable groups, such as the disabled and children from single parent households. Drawing on the 1996 and 1998–99 Armenia Integrated Survey of Living Standards (AISLS), which allows the identification of eligible individuals under this program, the authors estimate the impact of the fee-waiver program on utilization of health services, particularly among the poor. Across the two survey rounds utilization rates have indeed declined despite comparable levels of income, and this decline has occurred among both the poor and the rich, with average utilization falling by 12 percent between the two surveys. But families with four or more children, the largest beneficiary group under the “vulnerable population” program, have decreased their use of health care services in a disproportionate manner—21 percent reduction in use between the two survey rounds. This precipitous drop in health care use by this vulnerable group, despite being eligible for free medical services, suggests that the program was inadequate in stemming the decline in the use of health services. The authors further present evidence to suggest that the free-of-charge eligibility program acts more like an income transfer mechanism, particularly to disabled individuals.

This paper—a joint product of Public Services, Development Research Group, and the Human Development Sector Unit, Europe and Central Asia Region—is part of a larger effort in the Bank to understand the impact of health sector reform on health care utilization and poverty. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Nazmul Chaudhury, room MC3-576, telephone 202-458-4230, fax 202-523-0308, email address [nchaudhury@worldbank.org](mailto:nchaudhury@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The other authors may be contacted at [jhammer@worldbank.org](mailto:jhammer@worldbank.org) or [emurrugarra@worldbank.org](mailto:emurrugarra@worldbank.org). (34 pages)

## 2953. Health Facility Surveys: An Introduction

Magnus Lindelöw and Adam Wagstaff  
(January 2003)

Health facility surveys come in various guises. One dimension in which they vary is their motivation. Some seek to understand better links between households and providers. Others seek to understand better provider behavior and performance. Still others seek to understand the inter-relationships between providers, while yet others seek to shed light on the linkages between government and providers. Health facility surveys differ too in the data they collect, in part due to the different motivations. Surveys also vary in the way they collect data, some relying on direct observation, some on record review, and some on interview. Some quality data are collected through clinical vignettes. Facility data have been put to a variety of uses, including planning and budgeting; monitoring, evaluation, and promoting accountability; and research. Lindelöw and Wagstaff review some of the literature under each heading and offer some conclusions regarding the current state of health facility surveys.

This paper—a product of Public Services, Development Research Group—is a background paper prepared for the World Bank workshop on Health Facility Surveys, December 2001. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Hedy Sladovich, room MC3-607, telephone 202-473-7698, fax 202-522-1154, email address [hsladovich@worldbank.org](mailto:hsladovich@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The authors may be contacted at [mlindelov@worldbank.org](mailto:mlindelov@worldbank.org) or [awagstaff@worldbank.org](mailto:awagstaff@worldbank.org). (47 pages)

## 2954. Never Too Late to Get Together Again: Turning the Czech and Slovak Customs Union into a Stepping Stone to EU Integration

Bartłomiej Kaminski and Beata Smarzynska  
(January 2003)

The Czech and Slovak Customs Union (CSCU), which came into effect in Janu-

ary 1993, differs from regular regional trading arrangements as its goal was to minimize the economic cost of a decline in economic ties between its members rather than to set in motion the mechanism of integration. The creation of the CSCU ensured a smooth and conflict-free break up of Czechoslovakia and resulted in divergence in regulatory regimes of the two republics. This study argues that the process of mutual adjustment triggered by the emergence of national borders is over and that integration within the CSCU, similar in depth and scope to that existing within the European Union (EU), would be a desirable policy objective. By deepening integration, both the Czech and Slovak Republics would be better prepared to handle challenges associated with the EU accession. Such a regulatory realignment would also lower border costs and behind-the-border barriers to trade and result in a more attractive investment environment in both countries.

This paper—a product of Trade, Development Research Group—is part of a larger effort in the group to study the effects of regional trading arrangements. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Paulina Flewitt, room MC3-333, telephone 202-473-2724, fax 202-522-1159, email address [pflewitt@worldbank.org](mailto:pflewitt@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The authors may be contacted at [bkaminski@gvpt.umd.edu](mailto:bkaminski@gvpt.umd.edu) or [bsmarzynska@worldbank.org](mailto:bsmarzynska@worldbank.org). (19 pages)

## 2955. The Perversity of Preferences: The Generalized System of Preferences and Developing Country Trade Policies, 1976–2000

Çaglar Özden and Eric Reinhardt  
(January 2003)

Industrial countries maintain special tariff preferences, namely the Generalized System of Preferences (GSP), for imports from developing countries. Critics have highlighted the underachieving nature of such preferences, but developing countries continue to place the GSP at the heart of their agenda in multilateral negotiations. What effect do such preferences have on a recipient's own trade policies? Özden and Reinhardt develop and test a simple

theoretical model of a small country's trade policy choice, using a dataset of 154 developing countries from 1976 through 2000. They find that countries removed from the GSP adopt more liberal trade policies than those remaining eligible. The results, corrected for endogeneity and robust to numerous alternative measures of trade policy, suggest that developing countries may be best served by full integration into the reciprocity-based world trade regime rather than continued GSP-style special preferences.

This paper—a product of Trade, Development Research Group—is part of a larger effort in the group to study global trade regimes. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Paulina Flewitt, room MC3-333, telephone 202-473-2724, fax 202-522-1159, email address [pflewitt@worldbank.org](mailto:pflewitt@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The authors may be contacted at [cozden@worldbank.org](mailto:cozden@worldbank.org) or [erein@emory.edu](mailto:erein@emory.edu). (33 pages)

### 2956. Survey Compliance and the Distribution of Income

Johan A. Mistiaen and Martin Ravallion  
(January 2003)

While it is improbable that households with different incomes are equally likely to participate in sample surveys, the lack of data for nonrespondents has hindered efforts to correct for the bias in measures of poverty and inequality. Mistiaen and Ravallion demonstrate how the latent income effect on survey compliance can be estimated using readily available data on response rates across geographic areas. An application using the Current Population Survey for the United States indicates that compliance falls as income rises. Correcting for selective compliance appreciably increases mean income and inequality, but has only a small impact on poverty incidence up to commonly used poverty lines in the United States.

This paper—a product of the Poverty Team, Development Research Group—is part of a larger effort in the group to develop better methods of measuring poverty and inequality from survey data. Copies of the paper are available free from the World Bank, 1818 H Street NW,

Washington, DC 20433. Please contact Patricia Sader, room MC3-556, telephone 202-473-3902, fax 202-522-1151, email address [psader@worldbank.org](mailto:psader@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The authors may be contacted at [jmistiaen@worldbank.org](mailto:jmistiaen@worldbank.org) or [mravallion@worldbank.org](mailto:mravallion@worldbank.org). (31 pages)

### 2957. Mexico: In-Firm Training for the Knowledge Economy

Hong Tan and Gladys Lopez-Acevedo  
(January 2003)

Tan and Lopez-Acevedo use panel firm-level data to study in-firm training in Mexican manufacturing in the 1990s, its determinants, and effects on productivity and wages. Over this decade, not only did the incidence of employer-provided training become more widespread among manufacturing enterprises, but a higher proportion of the workforce received training within firms. Technological change, as proxied by research and development (R&D), was an important driver of these training trends. It contributed to increased training over time through a rising share of firms doing R&D, but more important, through a greater propensity over time to train conditional on conducting R&D.

The authors investigate the productivity and wage effects of training in several ways:

- Estimating the wage and productivity effects of training treated as endogenous.
- Using training event histories to examine the impact of changing training status over time.
- Looking at how training (and technology) practices changed where firms were located in productivity and wage distributions over the 1990s.

Together, these cross-sectional and panel analyses found evidence that training had large and statistically significant wage and productivity outcomes, that joint training and R&D yielded larger returns than investments in just one or the other, and that both training and technology investments enabled firms to improve their relative position in the wage and productivity distribution between 1993 and 1999.

This paper—a joint product of the Human Development Division, World Bank

Institute, and the Economic Policy Sector Unit, Latin America and the Caribbean Region—was prepared as a background paper for the 2002 Latin America and the Caribbean region's flagship report *Knowledge in Latin America and the Caribbean: Reconsidering Education, Training and Technology Policies*. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Hong Tan, room J3-093, telephone 202-473-3206, fax 202-676-0961, email address [htan@worldbank.org](mailto:htan@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. Gladys Lopez-Acevedo may be contacted at [gacevedo@worldbank.org](mailto:gacevedo@worldbank.org). (33 pages)

### 2958. Globalization and Workers in Developing Countries

Martín Rama  
(January 2003)

Stories on the positive and negative effects of globalization on workers in developing countries abound. But a comprehensive picture is missing and many of the stories are ideologically charged. This paper reviews the academic literature on the subject, including several studies currently under way, and derives the implications for public policy. First, it deals with the effects of openness to trade, foreign direct investment, and financial crises on average wages. Second, it discusses the impact of exposure to world markets on the dispersion of wages by occupation, skill, and gender. Third, it describes the pattern of job destruction and job creation associated with globalization. Because these two processes are not synchronized, the fourth issue addressed is the impact on unemployment rates. Fifth, the paper reviews the labor market policies that can be used to offset the adverse effects of globalization on employment and labor earnings. Finally, it discusses how the international community could encourage developing countries to adopt sound labor market policies in the context of globalization.

This paper—a product of Public Services, Development Research Group—is part of a larger effort in the group to assess the impact of labor market policies and institutions on economic performance. Copies of the paper are available free from the World Bank, 1818 H Street NW,



Washington, DC 20433. Please contact Hedy Sladovich, room MC3-607, telephone 202-473-7698, fax 202-522-1153, email address [hsladovich@worldbank.org](mailto:hsladovich@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The author may be contacted at [mrma@worldbank.org](mailto:mrma@worldbank.org). (38 pages)

### 2959. Wage Differentials and State-Private Sector Employment Choice in Yugoslavia

Michael M. Lokshin and Branko Jovanovic  
(January 2003)

Lokshin and Jovanovic use the newly available Yugoslavian Labor Force Survey data to investigate wage differentials and employment decisions in the state and private sectors in Yugoslavia. For the analysis the authors use three empirical models that rely on different statistical assumptions. They extend the standard switching regression model to allow non-normality in the joint distribution of the error terms. After correcting for the sector selection bias and controlling for workers' characteristics the authors find a private sector wage advantage. The wage premium is largest for workers with low education levels and declining for workers with higher educational levels. Given the regulatory and tax policies that pushed the private sector into the informal sphere of the economy during the period covered by our data, the authors argue that the state-private wage gap is likely to grow in the future. This will make it increasingly difficult for the state sector to attract and retain highly skilled employees.

This paper—a product of the Poverty Team, Development Research Group—is part of a larger effort in the group to understand labor issues in public sector reform. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Patricia Sader, room MC3-556, telephone 202-473-3902, fax 202-522-1153, email address [psader@worldbank.org](mailto:psader@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The authors may be contacted at [mlokshin@worldbank.org](mailto:mlokshin@worldbank.org) or [jovanovich@capecon.com](mailto:jovanovich@capecon.com). (33 pages)

### 2960. The Poverty/Environment Nexus in Cambodia and Lao People's Democratic Republic

Susmita Dasgupta, Uwe Deichmann, Craig Meisner, and David Wheeler  
(January 2003)

Environmental degradation can inflict serious damage on poor people because their livelihoods often depend on natural resource use and their living conditions may offer little protection from air, water, and soil pollution. At the same time, poverty-constrained options may induce the poor to deplete resources and degrade the environment at rates that are incompatible with long-term sustainability. In such cases, degraded resources may precipitate a downward spiral, by further reducing the income and livelihoods of the poor. This "poverty/environment nexus" has become a major issue in the recent literature on sustainable development. In regions where the nexus is significant, jointly addressing problems of poverty and environmental degradation may be more cost-effective than addressing them separately.

Empirical evidence on the prevalence and importance of the poverty/environment nexus is sparse because the requisite data are often difficult to obtain in developing countries. The authors use newly available spatial and survey data to investigate the spatial dimension of the nexus in Cambodia, and Lao People's Democratic Republic. The data enable the authors to quantify several environmental problems at the district and provincial level. In a parallel exercise, they map the provincial distribution of poor households. Merging the geographic information on poverty and the environment, the authors search for the nexus using geo-referenced indicator maps and statistical analysis. The results suggest that the nexus is country-specific: geographical, historical, and institutional factors may all play important roles in determining the relative importance of poverty and environment links in different contexts. Joint implementation of poverty and environment strategies may be cost-effective for some environmental problems; but independent implementation may be preferable in many cases as well. Since the search has not revealed a common nexus, the authors conclude on a cautionary note. The evidence suggests that the nexus concept can provide a useful catalyst for country-spe-

cific work, but not a general formula for program design.

This paper—a product of Infrastructure and Environment, Development Research Group—is part of a larger effort in the group to understand poverty/environment links in different contexts. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Yasmin D'Souza, room MC2-622, telephone 202-473-1449, fax 202-522-3230, email address [ydsouza@worldbank.org](mailto:ydsouza@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The authors may be contacted at [sdasgupta@worldbank.org](mailto:sdasgupta@worldbank.org), [udeichmann@worldbank.org](mailto:udeichmann@worldbank.org), or [dwheeler@worldbank.org](mailto:dwheeler@worldbank.org). (40 pages)

### 2961. Strategic Planning for Poverty Reduction in Vietnam : Progress and Challenges for Meeting the Localized Millennium Development Goals

Rob Swinkels and Carrie Turk  
(January 2003)

This paper discusses the progress that Vietnam has made toward meeting a core set of development goals that the government recently adopted as part of its Comprehensive Poverty Reduction and Growth Strategy (CPRGS). These goals are strongly related to the Millennium Development Goals (MDGs), but are adapted and expanded to reflect Vietnam's national challenges and the government's ambitious development plans. For each Vietnam Development Goal, the authors describe recent trends in relation to the trajectories implied by the MDGs, outline the intermediate targets identified by the government, and discuss the challenges involved in meeting these.

Relative to other countries of similar per capita expenditures, Vietnam has made rapid progress in a number of key areas. Poverty has halved over the 1990s, enrollment rates in primary education have risen to 91 percent (although there is a quality problem), indicators of gender equity have been strengthened, child mortality has been reduced, maternal health has improved, and real progress has been made in combating malaria and other communicable diseases. In contrast, Vietnam scores worse than other compa-

rable countries in the areas of child malnutrition, access to clean water, and combating HIV/AIDS.

A number of important crosscutting issues emerge from this analysis that need to be addressed. One such challenge is improving equity, both in terms of ensuring that the benefits of growth are distributed evenly across the population and in terms of access to public services. This will involve addressing the affordability of education and curative health care for poor households. Improvements in public expenditure planning are needed to align resources better to stated desired outcomes and to link nationally-defined targets to subnational planning and budgeting processes. There is also a need to address capacity and data gaps which will be crucial for effective monitoring.

This paper—a product of the Poverty Reduction and Economic Management Sector Unit, East Asia and Pacific Region—is part of a larger effort in the region to help governments move toward outcome-based planning for poverty reduction. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Nga Vinh Dao Lopez, room MC9-234, telephone 202-458-8032, fax 202-522-1671, email address [nlopez@worldbank.org](mailto:nlopez@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The authors may be contacted at [rswinkels@worldbank.org](mailto:rswinkels@worldbank.org) or [cturk@worldbank.org](mailto:cturk@worldbank.org). (46 pages)

## 2962. High Consumption Volatility: The Impact of Natural Disasters?

Philippe Auffret  
(January 2003)

A history of repeated external and domestic shocks has made economic insecurity a major concern across the Caribbean region. Of particular concern to all households, especially the poorest segments of the population, is the exposure to shocks that are generated by catastrophic events or natural disasters.

Auffret shows that despite high consumption growth, the Caribbean region suffers from a high volatility of consumption that decreases household welfare. After presenting some empirical evidence that consumption volatility is higher in the Caribbean region than in the rest of the world, he makes some empirically test-

able inferences that help explain consumption volatility. The author develops a conceptual framework for analyzing the effects of catastrophic events on household and aggregate welfare. According to this framework, the volatility of consumption comes from production shocks that are transformed into consumption shocks mostly because of underdeveloped or ineffective risk-management mechanisms. Auffret conducts an empirical analysis of the impact of catastrophic events on 16 countries (6 from the Caribbean region and 10 from Latin America) from 1970–99 and shows that catastrophic events lead to:

- A substantial decline in the growth of output.
- A substantial decline in the growth of investment.
- A more moderate decline in consumption growth (most of the decline is in private consumption, while public consumption declines moderately).
- A worsening of the current account of the balance of payments.

This paper—a product of the Economic Policy Sector Unit, Latin America and the Caribbean Region—is part of a larger effort in the region to assess the impact of catastrophic events on welfare. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Kevin Tomlinson, room I4-403, telephone 202-473-9763, fax 202-676-1494, email address [ktomlinson@worldbank.org](mailto:ktomlinson@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The author may be contacted at [pauffret@worldbank.org](mailto:pauffret@worldbank.org). (33 pages)

## 2963. Catastrophe Insurance Market in the Caribbean Region: Market Failures and Recommendations for Public Sector Interventions

Philippe Auffret  
(January 2003)

The Caribbean region suffers from a high degree of economic volatility. A history of repeated external and domestic shocks has made economic insecurity a major concern across the region. Of particular concern to all households, especially the poorest segments of the population, is the exposure to shocks that are generated by catastrophic events or natural disasters.

Auffret develops a conceptual framework for risk management and shows that the insurance market for catastrophic risk in the Caribbean region remains a “thin” market characterized by “high” prices and “low” transfer of risk. He analyzes the possible market failures which could explain the lack of development of the catastrophe insurance market. Finally he outlines a set of recommendations for public sector interventions.

This paper—a product of the Economic Policy Sector Unit, Latin America and the Caribbean Region—is part of a larger effort in the region to assess the impacts of catastrophic events on welfare. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Kevin Tomlinson, room I4-403, telephone 202-473-9763, fax 202-676-1494, email address [ktomlinson@worldbank.org](mailto:ktomlinson@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The author may be contacted at [pauffret@worldbank.org](mailto:pauffret@worldbank.org). (31 pages)

## 2964. Wages and Productivity in Mexican Manufacturing

Gladys Lopez Acevedo  
(January 2003)

Acevedo identifies the determinants of wages and productivity in Mexico over time using national representative linked employer-employee databases from the manufacturing sector. She shows that both employers and employees are benefiting from investments in education, training, work experience, foreign research and development, and openness after the North American Free Trade Agreement (NAFTA). Additional years of schooling have a higher impact on wages and productivity after NAFTA than before. Endogenous training effects are larger for productivity than for wages, suggesting that the employers share the costs and returns to training. The author also finds that investment in human capital magnifies technology-driven productivity gains. By comparing four regions of Mexico—north, center, south, and Mexico City—regional wage and productivity gaps are found to have increased over time.

This paper—a product of the Economic Policy Sector Unit, Latin America and the Caribbean Region—is a background paper for the region's 2002 Flagship Report

"Knowledge in Latin America and the Caribbean: Reconsidering Education, Training, and Technology Policies." Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Michael Geller, room I4-046, telephone 202-458-5155, fax 202-522-2112, email address [mgeller@worldbank.org](mailto:mgeller@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The author may be contacted at [gacedo@worldbank.org](mailto:gacedo@worldbank.org). (36 pages)

### 2965. Informality Revisited

William F. Maloney  
(January 2003)

Maloney develops a view of the informal sector in developing countries primarily as an unregulated micro-entrepreneurial sector and not as a disadvantaged residual of segmented labor markets. Drawing on recent work from Latin America, he offers alternative explanations for many of the characteristics of the informal sector customarily regarded as evidence of its inferiority.

This paper—a product of the Office of the Regional Chief Economist, Latin America and the Caribbean Region—is part of a larger effort in the region to understand the impact of macroeconomic crises. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Patricia Soto, room I8-018, telephone 202-473-7892, fax 202-522-7528, email address [psoto@worldbank.org](mailto:psoto@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The author may be contacted at [wmaloney@worldbank.org](mailto:wmaloney@worldbank.org). (23 pages)

### 2966. Health and Poverty in Guatemala

Michele Gragnolati and Alessandra Marini  
(January 2003)

Unlike many other countries in Latin America, Guatemala is only at the beginning of the demographic and epidemiological transition. The population is young, is growing rapidly, and is still primarily rural. Guatemala is among the worst performers in terms of health outcomes in Latin America, with one of the highest

infant mortality rates and one of the lowest life expectancies at birth. Major causes of death in Guatemala still include treatable and communicable diseases, such as diarrhea, pneumonia, cholera, malnutrition, and tuberculosis. A significant share of Guatemalans lack access to health care services. A combination of both supply- and demand-side constraints limit the ability of households to seek health care services in Guatemala, with supply-side constraints playing a more dominant role in rural areas than urban. Some progress has been made in reforming the health sector. Important steps have been taken on the institutional side, with health being one of the pilot ministries to decentralize financial management under the Integrated System for Health Care (SIAS program). Public spending has shifted toward preventive care, which is essential for treating the health problems faced by the poor. Despite these efforts, spending and health outcomes has not improved significantly. In addition, public spending on health is not well targeted. Overall public health spending benefits the highest quintiles disproportionately. By type of facility, public spending on hospitals is by far the most regressive.

This paper—a product of the Human Development Sector Unit, Latin America and the Caribbean Region—is part of a larger effort in the region to study poverty and human development processes. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Michele Gragnolati, room MC11-234, telephone 202-458-5287, fax 202-522-2955, email address [mgragnolati@worldbank.org](mailto:mgragnolati@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. Alessandra Marini may be contacted at [amarini@worldbank.org](mailto:amarini@worldbank.org). (65 pages)

### 2967. Malnutrition and Poverty in Guatemala

Alessandra Marini and Michelé Gragnolati  
(January 2003)

The objective of this paper is to document the extent and distribution of child and adult malnutrition in Guatemala; to analyze the relationship between selected child, maternal, household and community characteristics and children's nutritional status; and to outline the implica-

tions of the most important findings for nutritional policy.

The prevalence of chronic malnutrition among Guatemalan children in 2000 was the highest in Latin America and among the highest in the world. The data show very strong socioeconomic and geographic inequality. The econometric analysis reveals a strong impact of income and of intergenerational effects. Education of adults in the household and the availability of infrastructure are other important determinants of children's growth attainment. Finally, even controlling for income and other household and community characteristics, ethnicity remains an important determinant of child nutritional status. The study also reveals an increasing prevalence of excess weights and obesity among children and adults. Overnutrition tends to be higher among individuals living in urban areas and among non-poor and non-indigenous households.

This paper—a product of the Human Development Sector Unit, Latin America and the Caribbean Region—is part of a larger effort in the region to study poverty and human development processes. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Michele Gragnolati, room MC11-234, telephone 202-458-5287, fax 202-522-2955, email address [mgragnolati@worldbank.org](mailto:mgragnolati@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. Alessandra Marini may be contacted at [amarini@worldbank.org](mailto:amarini@worldbank.org). (54 pages)

### 2968. Refining Policy with the Poor: Local Consultations on the Draft Comprehensive Poverty Reduction and Growth Strategy in Vietnam

Edwin Shanks and Carrie Turk  
(January 2003)

In March 2001 the Government of Vietnam produced an Interim Poverty Reduction Strategy Paper (IPRSP) and announced its intention to develop a Comprehensive Poverty Reduction Strategy Paper (CPRGS) by the end of April 2002. In the IPRSP, the Government outlined its commitment to involve a broad range of stakeholders—including poor communities, local government authorities, and the enterprise sector—in drafting the CPRGS. The Ministry of Planning and

Investment, who was assigned by the Government of Vietnam to lead the CPRGS drafting process, asked the World Bank and a group of international nongovernmental organizations to support them in carrying out the local consultations. The consultations took place in six rural and urban locations across Vietnam selected to represent a range of poverty situations. About 1,800 people participated in the research.

This report, which is the first of three volumes documenting the local consultations, provides an account and reflection on the approach and methodology used in the consultations. It is intended this may give useful practical experience for future monitoring of the CPRGS as well as for people who are planning to carry out similar exercises in other countries. The report outlines the process that was followed from the point of developing a research outline from the IPRSP, through the field-work exercises, data compilation, and analysis, leading on to identification of the main policy messages made by the participants. It also describes how the findings were used to influence the final version of the CPRGS.

This paper—a product of the Poverty Reduction and Economic Management Sector Unit, East Asia and Pacific Region—is part of a larger effort in the region to improve participatory processes in the formulation of policies for poverty reduction. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Nga Vinh Dao Lopez, room MC9-242, telephone 202-458-8032, fax 202-522-1671, email address [nlopez@worldbank.org](mailto:nlopez@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The authors may be contacted at [edwin@fpt.vn](mailto:edwin@fpt.vn) or [cturk@worldbank.org](mailto:cturk@worldbank.org). (56 pages)

### 2969. Fostering Community-Driven Development: What Role for the State?

Monica Das Gupta, Helene Grandvoinnet, and Mattia Romani  
(January 2003)

States can do much to tap community-level energies and resources for development if they seek to interact more synergistically with local communities. The broader spin-off is creating a developmental society and polity. Using case studies

from Asia and Latin America, Das Gupta, Grandvoinnet, and Romani show how:

- State efforts to bring about land reform, tenancy reform, and expanding non-crop sources of income can broaden the distribution of power in rural communities, laying the basis for more effective community-driven collective action; and
- Higher levels of government can form alliances with communities, putting pressure on local authorities from above and below to improve development outcomes at the local level. These alliances can also be very effective in catalyzing collective action at community level, and reducing “local capture” by vested interests.

There are several encouraging points that emerge from these case studies. First, these powerful institutional changes do not necessarily take long to generate. Second, they can be achieved in a diversity of settings: tightly knit or loose-knit communities; war-ravaged or relatively stable; democratic or authoritarian; with land reform or (if carefully managed) even without. Third, there are strong political payoffs in terms of legitimacy and popular support for those who support such developmental action.

This paper—a joint product of Public Services and Rural Development, Development Research Group, and Poverty Reduction and Economic Management, Africa Technical Families—is part of a larger effort in the Bank to understand how to foster effective community-driven development. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Monica Das Gupta, room MC3-633, telephone 202-473-1983, fax 202-522-1153, email address [mdasgupta@worldbank.org](mailto:mdasgupta@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The other authors may be contacted at [hgrandvoinnet@worldbank.org](mailto:hgrandvoinnet@worldbank.org) or [mromani@worldbank.org](mailto:mromani@worldbank.org). (29 pages)

### 2970. The Social Impact of Social Funds in Jamaica: A Mixed-Methods Analysis of Participation, Targeting, and Collective Action in Community-Driven Development

Vijayendra Rao and Ana María Ibáñez  
(February 2003)

Rao and Ibáñez develop an evaluation method that combines qualitative evi-

dence with quantitative survey data analyzed with propensity score methods on matched samples to study the impact of a participatory community-driven social fund on preference targeting, collective action, and community decisionmaking. The data come from a case study of five pairs of communities in Jamaica where one community in the pair has received funds from the Jamaica social investment fund (JSIF) while the other has not—but has been picked to match the funded community in its social and economic characteristics. The qualitative data reveal that the social fund process is elite-driven and decisionmaking tends to be dominated by a small group of motivated individuals. But by the end of the project there was broad-based satisfaction with the outcome. The quantitative data from 500 households mirror these findings by showing that ex-ante the social fund does not address the expressed needs of the majority of individuals in the majority of communities. By the end of the construction process, however, 80 percent of the community expressed satisfaction with the outcome. An analysis of the determinants of participation shows that better educated and better networked individuals dominate the process. Propensity score analysis reveals that the JSIF has had a causal impact on improvements in trust and the capacity for collective action, but these gains are greater for elites within the community. Both JSIF and non-JSIF communities are more likely now to make decisions that affect their lives which indicates a broad-based effort to promote participatory development in the country, but JSIF communities do not show higher levels of community-driven decisions than non-JSIF communities. The authors shed light on the complex ways in which community-driven development works inside communities—a process that is deeply imbedded within Jamaica's sociocultural and political context.

This paper—a product of the Poverty Team, Development Research Group—is part of a larger effort in the group to evaluate community-driven development. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Patricia Sader, room MC3-556, telephone 202-473-3902, fax 202-522-1153, email address [psader@worldbank.org](mailto:psader@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>.

Vijayendra Rao may be contacted at [vr Rao@worldbank.org](mailto:vr Rao@worldbank.org). (56 pages)

### 2971. Short but not Sweet: New Evidence on Short Duration Morbidities from India

Jishnu Das and Carolina Sánchez-Páramo  
(February 2003)

India spends 6 percent of its GDP on health—three times the amount spent by Indonesia and twice that of China—and spending on non-chronic morbidities is three times that of chronic illnesses. It is normally assumed that the high spending on non-chronic illnesses reflects the prevalence of morbidities with high case-fatality or case-disability ratios. But there is little data that can be used to separate out spending by type of illness. Das and Sánchez-Páramo address this issue with a unique dataset where 1,621 individuals in Delhi were observed for 16 weeks through detailed weekly interviews on morbidity and health-seeking behavior.

The authors' findings are surprising and contrary to the normal view of health spending. They define a new class of illnesses as "short duration morbidities" if they are classified as non-chronic in the international classification of disease and are medically expected to last less than two weeks. The authors show that short duration morbidities are important in terms of prevalence, practitioner visits, and household health expenditure: Individuals report a short duration morbidity in one out of every five weeks. Moreover, one out of every three weeks reported with a short duration morbidity results in a doctor visit, and each week sick with such a morbidity increases health expenditure by 25 percent. Further, the absolute spending on short duration morbidities is similar across poor and rich income households. The authors discuss the implications of these findings in understanding household health behavior in an urban context, with special emphasis on the role of information in health-seeking behavior.

This paper—a product of Public Services, Development Research Group—is part of a larger effort in the group to understand health expenditures. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washing-

ton, DC 20433. Please contact Hedy Sladovich, room MC3-311, telephone 202-473-7698, fax 202-522-1154, email address [hsladovich@worldbank.org](mailto:hsladovich@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The authors may be contacted at [jdas1@worldbank.org](mailto:jdas1@worldbank.org) or [csanchezparamo@worldbank.org](mailto:csanchezparamo@worldbank.org). (44 pages)

### 2972. Economic Growth, Inequality, and Poverty: Findings from a New Data Set

Richard H. Adams, Jr.  
(February 2003)

Adams uses new data from 50 developing countries and 101 intervals to examine the impact of economic growth on poverty and inequality. He finds that growth represents an important means for reducing poverty in the developing world. When economic growth is measured by survey mean income (consumption), there is a strong, statistical link between growth and poverty reduction. When economic growth is measured by GDP per capita, the statistical relationship between growth and poverty reduction is still present, albeit not quite as strong.

Economic growth reduces poverty because growth has little impact on income inequality. In the data set income inequality rises on average less than 1.0 percent a year. Since income distributions are relatively stable over time, economic growth tends to raise incomes for all members of society, including the poor. When growth is measured by survey mean income (consumption), the elasticity of poverty with respect to growth is  $-2.59$ . In other words, on average, a 10 percentage point increase in economic growth (measured by survey mean income) will produce a 25.9 percent decrease in the proportion of people living in poverty (\$1 a person a day).

This paper—a product of the Poverty Reduction Group, Poverty Reduction and Economic Management Network—is part of a larger effort in the network to better inform policy debates about economic growth, poverty, and inequality. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Nelly Obias, room MC4-834, telephone 202-473-1986, fax 202-522-3283, email address [nobias@worldbank.org](mailto:nobias@worldbank.org). Policy Research

Working Papers are also posted on the Web at <http://econ.worldbank.org>. The author may be contacted at [radams@worldbank.org](mailto:radams@worldbank.org). (42 pages)

### 2973. Intellectual Property Rights, Licensing, and Innovation

Guifang Yang and Keith E. Maskus  
(February 2003)

There is considerable debate in economics literature on whether a decision by developing countries to strengthen their protection of intellectual property rights (IPRs) will increase or reduce their access to modern technologies invented by industrial countries. This access can be achieved through technology transfer of various kinds, including foreign direct investment and licensing. Licensing is the focus of this paper.

To the extent that inventing firms choose to act more monopolistically and offer fewer technologies on the market, stronger IPRs could reduce international technology flows. However, to the extent that IPRs raise the returns to innovation and licensing, these flows would expand. In theory, the outcome depends on how IPRs affect several variables—the costs of, and returns to, international licensing; the wage advantage of workers in poor countries; the innovation process in industrial countries; and the amount of labor available for innovation and production.

Yang and Maskus develop a theoretical model in which firms in the North (industrial countries) innovate products of higher quality levels and decide whether to produce in the North or transfer production rights to the South (developing countries) through licensing. Different quality levels of each product are sold in equilibrium because of differences in consumers' willingness-to-pay for quality improvements. Contracting problems exist because the inventors in the North must indicate to licensees in the South whether their product is of higher or lower quality and also prevent the licensees from copying the technology. So, constraints in the model ensure that the equilibrium flow of licensing higher-quality goods meets these objectives. When the South strengthens its patent rights, copying by licensees is made costlier but the returns to licensing are increased. This change affects the dynamic decisions regarding innovation and technology transfer, which

could rise or fall depending on market parameters, including the labor available for research and production.

Results from the model show that the net effects depend on the balance between profits made by the Northern licensor and lower labor costs in the South. If the size of the labor force used in Northern innovation compared with that used in producing goods in both the North and South is sufficiently small (a condition that accords with reality), stronger IPRs in the South would lead to more licensing and innovation. This change would also increase the Southern wage relative to the Northern wage. So, in this model a decision by developing countries to increase their patent rights would expand global innovation and increase technology transfer. This result is consistent with recent empirical evidence.

It should be noted that while the results suggest that international agreements to strengthen IPRs should expand global innovation and technology transfer through licensing, the model cannot be used for welfare analysis. Thus, while the developing countries enjoy more inward licensing, the cost per license could be higher, and prices could also rise, with an unclear overall effect on economic well-being.

This paper—a product of Trade, Development Research Group—is part of a larger effort in the group to assess the impact of intellectual property rights on economic development. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Paulina Flewitt, room MC3-333, telephone 202-473-2724, fax 202-522-1159, email address [pflewitt@worldbank.org](mailto:pflewitt@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The authors may be contacted at [keith.maskus@colorado.edu](mailto:keith.maskus@colorado.edu) or [lynn.yang@worldnet.att.net](mailto:lynn.yang@worldnet.att.net). (34 pages)

#### **2974. From Knowledge to Wealth: Transforming Russian Science and Technology for a Modern Knowledge Economy**

Alfred Watkins  
(February 2003)

Russia possesses a sophisticated science and technology (S&T) infrastructure (research capability, technically trained workforce, and technical research univer-

sities) which, even today, is a world leader in many fields. Despite this world class basic research capacity, Russia's exports are primarily raw materials. At a time when wealth depends to an increasing degree on knowledge, Russia does not have an effective system for converting its scientific capacity into wealth.

Russia's S&T resources are isolated bureaucratically (they are deployed in the rigid hierarchical system devised in the 1920s to mobilize resources for rapid state-planned industrial development and national defense), functionally (there are few links between the supply of S&T output by research institutes and the demand for S&T by Russian or foreign enterprises), and geographically (many assets are located in formerly closed cities or isolated science/atomic cities). Overcoming these inefficiencies and adjusting the S&T system to the demands of a market economy will require a major program of institutional and sectoral reform.

Part I of this paper describes the ambiguous legacy of the Soviet S&T system and the status of the Russian S&T sector after 10 years of transition. Part II describes the evolution of the Russian system of intellectual property rights protection from Soviet times to the present and argues that Russia will never develop a successful commercialization program until it clarifies the ownership of the large stock of intellectual property funded with federal budget resources. Part III outlines a comprehensive 10-point sectoral reform program to improve the efficiency of government research and development spending and link the Russian S&T system with market forces.

This paper—a product of the Private and Financial Sectors Development Unit, Europe and Central Asia Region—is part of a larger effort in the region to foster understanding of technology commercialization issues. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Alfred Watkins, room H12-115, telephone 202-473-7277, fax 202-522-3687, email address [awatkins@worldbank.org](mailto:awatkins@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. (57 pages)

#### **2975. Policy Options for Meeting the Millennium Development Goals in Brazil: Can Micro-Simulations Help?**

Francisco H. G. Ferreira and  
Phillippe G. Leite  
(February 2003)

Ferreira and Leite investigate whether micro-simulation techniques can shed light on the types of policies that should be adopted by countries wishing to meet their Millennium Development Goals. They compare two families of micro-simulations. The first family of micro-simulations decomposes required poverty changes into a change in the mean and a reduction in inequality. Although it highlights the importance of inequality reduction, it appears to be too general to be of much use for policymaking. The second family of micro-simulations is based on a richer model of behavior in the labor markets. It points to the importance of combining different policy options, such as educational expansion and targeted conditional redistribution schemes, to ensure that the poorest people in society are successfully reached. But the absence of market equilibria in these statistical models, as well as the strong stability assumptions which are implicit in their use, argue for extreme caution in their interpretation.

This paper—a product of the Poverty Team, Development Research Group—is part of a larger effort in the group to understand pro-poor policies. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Patricia Sader, room MC3-556, telephone 202-473-3902, fax 202-522-1153, email address [psader@worldbank.org](mailto:psader@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The authors may be contacted at [fferreira@worldbank.org](mailto:fferreira@worldbank.org) or [pleite@worldbank.org](mailto:pleite@worldbank.org). (39 pages)

#### **2976. Rural Extension Services**

Jock R. Anderson and Gershon Feder  
(February 2003)

Anderson and Feder analyze the considerations that lead policymakers to undertake extension investments as a key public responsibility, as well as the complex



set of factors and intra-agency incentives that explain why different extension systems' performance vary. The authors provide a conceptual framework outlining farmers' demand for information, the welfare economic characterizations of extension services, and the organizational and political attributes that govern the performance of extension systems. They use the conceptual framework to examine several extension modalities and to analyze their likely and actual effectiveness. Specifically, the modalities reviewed include "training and visit" extension, decentralized systems, "fee-for-service" and privatized extension, and farmer-field-schools. The authors also discuss methodological issues pertaining to the assessment of extension outcomes and review the empirical literature on extension impact. They emphasize the efficiency gains that can come from locally decentralized delivery systems with incentive structures based largely on private provision that in most poorer countries is still publicly-funded. In wealthier countries, and for particular higher income farmer groups, extension systems will likely evolve into fee-for-service organizations.

This paper—a joint product of the Agriculture and Rural Development Department and Rural Development, Development Research Group—is part of a larger effort in the Bank to study the opportunities and challenges facing agricultural extension. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Pauline Kokila, room MC3-510, telephone 202-473-3716, fax 202-522-1153, email address [pkokila@worldbank.org](mailto:pkokila@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The authors may be contacted at [janderson@worldbank.org](mailto:janderson@worldbank.org) or [gfeder@worldbank.org](mailto:gfeder@worldbank.org). (33 pages)

### 2977. The Strategic Use and Potential Demand for an HIV Vaccine in Southern Africa

Christopher Desmond and Robert Greener  
(February 2003)

HIV prevalence in Southern Africa is the highest in the world and the impact of HIV/AIDS in the region are devastating at all levels of society, including the wider economy. Government response has lagged

behind the pace of the epidemic, but programs are now beginning to focus on a broad range of interventions to combat its further spread and to mitigate its impact.

Desmond and Greener investigate the issues around the targeting of an eventual HIV vaccine. There is at present no vaccine against HIV. Although several candidates are in the trial stage, it is not likely that a vaccine effective against the subtype of the virus prevalent in Southern Africa will be available for 10–15 years. When it is, it may be expensive, only partially effective, and confer immunity for a limited period only. Vaccination programs will need to make the best use of the vaccine that is available and effective targeting will be essential.

The authors identify potential target groups for a vaccine, and estimate how many individuals would be in need of vaccination. They develop a method for estimating how many cases of HIV infection are likely to be avoided for each vaccinated individual. The cases avoided are of two kinds: primary—the individual case that might have occurred in people who are vaccinated, and secondary—the number of people that the vaccinated individual would otherwise have caused to become infected. Both of these depend on assumptions about the efficacy and duration of vaccine protection and the extent and nature of sexual risk behavior in the population groups. The authors distinguish between the HIV cases averted per vaccination and the cases averted per 100 recruits into a vaccination program.

The cases averted per 100 recruits is used to develop a priority ranking of the identified population groups for vaccination. The authors discuss the issue of ease of access to those groups and how the differential costs would affect the vaccination strategy. They conclude that an expensive vaccine should be administered to commercial sex workers first, while an inexpensive vaccine would be better administered first to general population groups, in particular, schoolchildren.

Desmond and Greener conclude with a discussion of current levels of public and private expenditure on HIV prevention and treatment, and the implications for an assessment of the willingness to pay for an eventual HIV vaccine.

This paper—a product of Public Services, Development Research Group—is part of the research project "The Economics of an HIV/AIDS Vaccine in Developing Countries: Potential Impact, Cost-Effectiveness, and Willingness to Pay" sponsored by the European Commission and the World Bank. The project was launched in response to recommendations of the World Bank's AIDS Vaccine Task Force. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Hedy Sladovich, mail stop MC3-311, telephone 202-473-7698, fax 202-522-1154, email address [hsladovich@worldbank.org](mailto:hsladovich@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The authors may be contacted at [desmondcl@nu.ac.za](mailto:desmondcl@nu.ac.za) or [rgreener@bidpa.bw](mailto:rgreener@bidpa.bw). (47 pages)

2978. The Epidemiological Impact of an HIV Vaccine on the HIV/AIDS Epidemic in Southern India

Nico J. D. Nagelkerke and Sake J. De Vlas  
(February 2003)

The potential epidemiological impact of preventive HIV vaccines on the HIV epidemic in Southern India is examined using a mathematical deterministic dynamic compartmental model. Various assumptions about the degree of protection offered by such a vaccine, the extent of immunological response of those vaccinated, and the duration of protection afforded are explored. Alternative targeting strategies for HIV vaccination are simulated and compared with the impact of conventional prevention interventions in high-risk groups and the general population. The impact of disinhibition (increased risk behavior due to the presence of a vaccine) is also considered.

Vaccines that convey a high degree of protection in a share of or all of those immunized and that convey lifelong immunity are the most effective in curbing the HIV epidemic. Vaccines that convey less than complete protection may also have substantial public health impact, but disinhibition can easily undo their effects and they should be used combined with conventional prevention efforts. Conventional interventions that target commercial sex workers and their clients to increase condom use can also be highly effective and can be implemented immediately, before the arrival of vaccines.

This paper—a product of Public Services, Development Research Group—is part of a research project "The Economics of an HIV/AIDS Vaccine in Developing

Countries: Potential Impact, Cost-Effectiveness, and Willingness to Pay" sponsored by the European Commission and the World Bank. The project was launched in response to recommendations of the World Bank's AIDS Vaccine Task Force. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Hedy Sladovich, mail stop MC3-311, telephone 202-473-7698, fax 202-522-1154, email address [hsladovich@worldbank.org](mailto:hsladovich@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The authors may be contacted at [nico.nagelkerke@rivm.nl](mailto:nico.nagelkerke@rivm.nl) or [devlas@mgz.fgg.eur.nl](mailto:devlas@mgz.fgg.eur.nl). (27 pages)

### 2979. Regulation and Internet Use in Developing Countries

Scott Wallsten  
(March 2003)

Policymakers are simultaneously concerned about the consequences of a worsening "digital divide" between rich and poor countries and hopeful that information and computing technologies could increase economic growth in developing countries. But very little research has explored the reasons for the digital divide beyond noting that it is strongly correlated with standard development indicators, and no empirical research has explored the role of regulation.

Wallsten uses data from a unique new survey of telecommunications regulators and other sources to measure the effects of regulation in Internet development. He finds regulation strongly correlated with lower Internet penetration and higher Internet access charges. More specifically, controlling for factors such as income, development of the telecommunications infrastructure, ubiquity of personal computers, and time trends, countries that require formal regulatory approval for Internet service providers (ISPs) to begin operations have fewer Internet users and Internet hosts than countries that do not require such approval. Moreover, countries that regulate ISP final-user prices have higher Internet access prices than countries that do not have such regulations. These results suggest that developing countries' own regulatory policies can have large impacts on the digital divide.

This paper—a product of Investment Climate, Development Research Group—

is part of a larger effort in the group to understand regulatory and infrastructure sector reforms. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Paulina Sintim-Aboagye, room MC3-422, telephone 202-473-7644, fax 202-522-1155, email address [psintimaboagye@worldbank.org](mailto:psintimaboagye@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The author may be contacted at [swallsten@worldbank.org](mailto:swallsten@worldbank.org). (24 pages)

### 2980. Living and Dying with Hard Pegs: The Rise and Fall of Argentina's Currency Board

Augusto de la Torre, Eduardo Levy Yeyati,  
and Sergio L. Schmukler  
(March 2003)

The rise and fall of Argentina's currency board shows the extent to which the advantages of hard pegs have been overstated. The currency board did provide nominal stability and boosted financial intermediation, at the cost of endogenous financial dollarization, but did not foster monetary or fiscal discipline. The failure to adequately address the currency-growth-debt trap into which Argentina fell at the end of the 1990s precipitated a run on the currency and the banks, followed by the abandonment of the currency board and a sovereign debt default. The crisis can be best interpreted as a bad outcome of a high-stakes strategy to overcome a weak currency problem. To increase the credibility of the hard peg, the government raised its exit costs, which deepened the crisis once exit could no longer be avoided. But some alternative exit strategies would have been less destructive than the one adopted.

This paper—a product of Macroeconomics and Growth, Development Research Group—is part of a larger effort in the group to understand how currency regimes work. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Emily Khine, room MC3-347, telephone 202-473-7471, fax 202-522-3518, email address [ekkhine@worldbank.org](mailto:ekkhine@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The authors may be contacted at [adelatorre@worldbank.org](mailto:adelatorre@worldbank.org), [ely@utdt.edu](mailto:ely@utdt.edu), or [sschmukler@worldbank.org](mailto:sschmukler@worldbank.org). (54 pages)

### 2981. Voice Lessons: Local Government Organizations, Social Organizations, and the Quality of Local Governance

Vivi Alatas, Lant Pritchett,  
and Anna Wetterberg  
(March 2003)

As part the Local Level Institutions study of local life in villages in rural Indonesia information was gathered on sampled household's participation in social activities. We classified the reported activities into four distinct types of social activity: *sociability, networks, social organizations, and village government organizations*. Respondents were also asked about questions about their village government: whether they were *informed* about village funds and projects, if they *participated* in village decisions, if they expressed *voice* about village problems, and if they thought the village government was *responsive* to local problems. Several findings emerge regarding the relationship between the social variables and the governance activities. Not surprisingly, an individual household's involvement with the village government organizations tends to increase their own reports of positive voice, participation, and information. In contrast, the data suggest a negative spillover on other households. There is a strong "chilling" effect of one household's participation in village government organizations on the voice, participation, and information of other households in the same village. The net effect of engagement in village government organizations is generally negative, while the net effect of membership in social organizations is more often associated with good governance outcomes. These findings indicate that existing social organizations have a potentially important role to play in enhancing the performance of government institutions in Indonesia and in the evolution of good governance more generally.

This paper—a product of the Environment and Social Development Sector Unit, East Asia and Pacific Region—is part of a larger effort in the region to study local level institutions. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Anju Sachdeva, room MC8-112, telephone 202-458-2717, fax 202-522-1666, email address [asachdeva@worldbank.org](mailto:asachdeva@worldbank.org). Policy Research Working Papers are also posted on the Web at



<http://econ.worldbank.org>. The authors may be contacted at [valatas@worldbank.org](mailto:valatas@worldbank.org), [lant\\_pritchett@ksg.harvard.edu](mailto:lant_pritchett@ksg.harvard.edu), or [anna\\_w@uclink.berkeley.edu](mailto:anna_w@uclink.berkeley.edu). (49 pages)

## 2982. Trade Liberalization and Labor Market Adjustment in Brazil

Nina Pavcnik, Andreas Blom, Pinelopi Goldberg, and Norbert Schady

The authors study the impact of the 1988–94 trade liberalization in Brazil on wage distribution. They explore three main channels through which trade liberalization could have affected wage distribution: (1) increasing returns to skilled workers because of Heckscher-Ohlin adjustments to trade policy; (2) trade-induced skill-biased technological change; and (3) changes in industry wage premiums.

The results suggest that trade reform in Brazil did contribute to the growing skill premium through skill-biased technological change, which was partially instigated by increased foreign competition. The authors also find that sector-specific returns to skill increased more in sectors with bigger tariff reductions. But they find little support for Heckscher-Ohlin type adjustments to trade reform. Overall, the effects of trade reform on wage inequality seem relatively small.

This paper—a product of the Poverty Sector Unit, Latin America and the Caribbean Region—is part of a larger effort in the region to understand the effects of globalization on inequality in developing countries. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Anne Pillay, room I8-095, telephone 202-458-8046, fax 202-522-0054, email address [apillay@worldbank.org](mailto:apillay@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The authors may be contacted at [nina.pavcnik@dartmouth.edu](mailto:nina.pavcnik@dartmouth.edu), [ablom@worldbank.org](mailto:ablom@worldbank.org), or [nschady@worldbank.org](mailto:nschady@worldbank.org). (46 pages)

## 2983. Telecommunication Reform in Ghana

Luke Haggarty, Mary M. Shirley, and Scott Wallsten  
(March 2003)

In 1996 Ghana privatized its incumbent telecommunications firm by selling 30

percent of Ghana Telecom to Telekom Malaysia, licensing a second network operator, and allowing multiple mobile firms to enter the market. The reforms yielded mixed results. Landline telephone penetration increased dramatically while the number of mobile subscribers surpassed even this higher level of fixed line subscribers. On the other hand, the network did not reach the levels the government hoped, the second network operator never really got off the ground, and the regulator remained weak and relatively ineffective. The sustainability of competition is unclear. The government ended Telekom Malaysia's management of Ghana Telecom and has invited Norway's Telenor as a strategic partner. What this means in practice remains unclear, and the process for selecting Telenor lacked any transparency. Meanwhile, some of the mobile firms are in precarious financial positions. Competition is still relatively strong, but its sustainability will depend on the government's future commitment to ensuring it.

This paper—a product of Investment Climate, Development Research Group—is part of a larger effort in the group to understand telecommunications reforms in Africa. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Paulina Sintim-Aboagye, room MC3-422, telephone 202-473-7644, fax 202-522-1155, email address [psintimaboagye@worldbank.org](mailto:psintimaboagye@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The authors may be contacted at [lhaggarty@worldbank.org](mailto:lhaggarty@worldbank.org), or [swallsten@worldbank.org](mailto:swallsten@worldbank.org). (40 pages)

## 2984. Finance and Income Inequality: Test of Alternative Theories

George Clarke, Lixin Colin Xu, and Heng-fu Zou  
(March 2003)

Although theoretical models make distinct predictions about the relationship between financial sector development and income inequality, little empirical research has been conducted to compare their relative explanatory power. Clarke, Xu, and Zou examine the relation between financial intermediary development and income inequality in a panel data set of

91 countries for the period 1960–95. Their results provide evidence that inequality decreases as economies develop their financial intermediaries, consistent with the theoretical models in Galor and Zeira (1993) and Banerjee and Newman (1993). Moreover, consistent with the insight of Kuznets, the relation between the Gini coefficient and financial intermediary development appears to depend on the sectoral structure of the economy: a larger modern sector is associated with a smaller drop in the Gini coefficient for the same level of financial intermediary development. But there is no evidence of an inverted-U-shaped relation between financial sector development and income inequality, as suggested by Greenwood and Jovanovic (1990). The results are robust to controlling for biases introduced by simultaneity.

This paper—a product of Investment Climate, Development Research Group—is part of a larger effort in the group to understand the link between economic development and financial sector performance. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Paulina Sintim-Aboagye, room MC3-300, telephone 202-473-7644, fax 202-522-1155, email address [psintimaboagye@worldbank.org](mailto:psintimaboagye@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The authors may be contacted at [gclarke@worldbank.org](mailto:gclarke@worldbank.org), [lxu@worldbank.org](mailto:lxu@worldbank.org), or [hzou@worldbank.org](mailto:hzhou@worldbank.org). (24 pages)

## 2985. The Impact of Minimum Wages on Employment in a Low Income Country: An Evaluation Using the Difference-in-Differences Approach

Vivi Alatas and Lisa Cameron  
(March 2003)

Unlike the well-developed literature on the employment impact of the minimum wage in industrial nations, very little is known about minimum wage effects in low income countries. Minimum wages increased sharply in Indonesia between 1990 and 1996 and by more in some provinces than in others. Following Card and Krueger (1994) the authors exploit the large geographic variation in the rate of increase and compare changes in employment in the clothing, textile, footwear, and

leather industries on either side of the Jakarta-West Java border. They use household level labor market data to establish compliance with the legislation. They obtain matched difference-in-difference estimates of the employment impact using a census of all large and medium-size firms in the clothing, textile, leather, and footwear industries. Alatas and Cameron find some evidence of a negative employment impact for small, domestic firms but no employment impact for large firms, foreign or domestic.

This paper—a product of the Environment and Social Development Sector Unit, East Asia and the Pacific Region—is part of a larger effort in the region to assess the poverty situation and related issues. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Taranaki Mailei, room MC8-808, telephone 202-458-7347, fax 202-522-1560, email address tmailei@worldbank.org. Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The authors may be contacted at [valatas@worldbank.org](mailto:valatas@worldbank.org) or [lcameron@unimelb.edu.au](mailto:lcameron@unimelb.edu.au). (42 pages)

### **2986. Government Bonds in Domestic and Foreign Currency: The Role of Macroeconomic and Institutional Factors**

Stijn Claessens, Daniela Klingebiel, and Sergio Schmukler  
(March 2003)

The development of government bond markets and, in particular, their currency composition have recently received much interest, partly because of their relation with financial crises. The authors study the determinants of the size and currency composition of government bond markets for a panel of industrial and developing countries. They find that countries with larger economies, greater domestic investor bases, and more flexible exchange rate regimes have larger domestic currency bond markets, while smaller economies rely more on foreign currency bonds. Better institutional frameworks and macroeconomic fundamentals enhance both domestic currency bond markets and increase countries' ability to issue foreign currency bonds, while they raise the share of foreign exchange bonds.

This paper—a product of Macroeconomics and Growth, Development Research Group—is part of a larger effort in the group to understand how capital markets work. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Emily Khine, room MC3-347, telephone 202-473-7471, fax 202-522-3518, email address [kkhine@worldbank.org](mailto:kkhine@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The authors may be contacted at [stijn@fee.uva.nl](mailto:stijn@fee.uva.nl), [dklingebiel@worldbank.org](mailto:dklingebiel@worldbank.org), or [sschmukler@worldbank.org](mailto:sschmukler@worldbank.org). (39 pages)

### **2987. East Asia's Dynamic Development Model and the Republic of Korea's Experiences**

Ho-Chul Lee and Mary P. McNulty  
(March 2003)

No region has been more dynamic in recent years than East Asia. Despite its successful economic development, evaluations of the East Asian development model have often been capricious, shifting from "miracle" to "cronyism." How can we explain East Asia's ups and downs consistently? To respond to this challenge, it is necessary to study the progress of East Asian development and to trace the influence of Asian cultural values. This study mainly focuses on cultural aspects of economic progress and analyzes East Asia's philosophical and historical backgrounds to explain the dynamic process.

East Asians believe that balance between opposite but complementary forces, Yin and Yang, will ensure social stability and progress. Through repeated rebalancing to maintain harmony, the society comes to maturity. In traditional East Asian societies, a balance was maintained between Confucianism (Yang) and Taoism, Buddhism, and other philosophies (Yin). In modern societies, the challenge is to balance traditional systems (Yang) and Western style capitalism (Yin).

This East Asian development model explains the Republic of Korea's rise, fall, and recovery. Korea was a poor country until the early 1960s, during the time when spiritualism (Yang) dominated. From the 1960s through the 1980s, Korea achieved rapid growth by finding a new balance and moving toward materialism (Yin) from spiritualism (Yang). But the

failure to maintain a harmonious balance between cooperatism and collectivism (Yang) and individualism (Yin) led to major weaknesses in labor and financial markets that contributed significantly to the financial crisis in 1997. As Korea arrived at a new balance by instituting reform programs, the venture-oriented information and communication technology (ICT) industry blossomed and led to a rapid economic recovery. Since 2000, domestic financial scandals and political corruption have emerged as new social issues. Korea's next challenge is to find a new harmonization between moralism (Yang) and legalism (Yin).

This paper—a product of the Office of the Senior Vice President and Chief Economist, Development Economics—is part of a larger effort in the Bank to examine institutional and cultural foundations of development across regions and countries. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Lorraine James, room MC4-347, telephone 202-473-5621, fax 202-522-1158, email address [ljames@worldbank.org](mailto:ljames@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The authors may be contacted at [hcleel@mofe.go.kr](mailto:hcleel@mofe.go.kr) or [mcnultym@gwu.edu](mailto:mcnultym@gwu.edu). (58 pages)

### **2988. Trade Facilitation and Economic Development: Measuring the Impact**

John S. Wilson, Catherine L. Mann, and Tsunehiro Otsuki  
(March 2003)

Wilson, Mann, and Otsuki analyze the relationship between trade facilitation, trade flows, and GDP per capita in the Asia-Pacific region for the goods sector. They define and measure trade facilitation using four broad indicators. These are constructed using country-specific data for port efficiency, customs environment, regulatory environment, and electronic-business usage. They estimate the relationship between these indicators and trade flows using a gravity model. The model includes tariffs and other standard variables.

The authors find that enhanced port efficiency has a large and positive effect on trade. Regulatory barriers deter trade. The results also suggest that improve-

ments in customs and greater electronic-business use significantly expands trade, but to a lesser degree than the effect of ports or regulations. The authors then estimate the benefits of specific trade facilitation efforts by quantifying differential improvement by members of the Asia Pacific Economic Cooperation (APEC) in these four areas. Based on a scenario in which APEC members below average improve capacity halfway to the average for all members, the authors find that intra-APEC trade could increase by \$254 billion. This represents approximately a 21 percent increase in intra-APEC trade flows, about half coming from improved port efficiencies in the region. Using Dollar and Kraay's estimate of the effect of trade on per capita GDP, these improvements in trade facilitation suggest an increase in APEC average per capita GDP of 4.3 percent.

This paper—a product of Trade, Development Research Group—is part of a larger effort in the group to explore the link between trade and development. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Paulina Flewitt, room MC3-333, telephone 202-473-2724, fax 202-522-1159, email address [pflewitt@worldbank.org](mailto:pflewitt@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The authors may be contacted at [jswilson@worldbank.org](mailto:jswilson@worldbank.org), [clmann@iie.com](mailto:clmann@iie.com), or [totsuki@worldbank.org](mailto:totsuki@worldbank.org). (43 pages)

### **2989. Decentralization and Public Services: The Case of Immunization**

Peyvand Khaleghian  
(March 2003)

Khaleghian studies the impact of political decentralization on childhood immunization, an essential public service provided in almost all countries. He examines the relationship empirically using a time-series data set of 140 low- and middle-income countries from 1980 to 1997. The author finds that decentralization has different effects in low- and middle-income countries. In the low-income group, decentralized countries have higher coverage rates than centralized ones, with an average difference of 8.5 percent for measles and DTP3 vaccines. In the middle-income group, the reverse effect is observed: de-

centralized countries have lower coverage rates than centralized ones, with an average difference of 5.2 percent for the same vaccines. Both results are significant at the 99 percent level. Modifiers of the decentralization-immunization relationship also differ in the two groups. In the low-income group, development assistance reduces the gains from decentralization. In the middle-income group, democratic government mitigates the negative effects of decentralization, and decentralization reverses the negative effects of ethnic tension and ethno-linguistic fractionalization, but institutional quality and literacy rates have no interactive effect either way. Similar results are obtained whether decentralization is measured with a dichotomous categorical variable or with more specific measures of fiscal decentralization. The study confirms predictions in the theoretical literature about the negative impact of local political control on services that have public goods characteristics and inter-jurisdictional externalities. The author discusses reasons for the difference between low- and middle-income countries.

This paper—a product of Public Services, Development Research Group—is part of a larger effort in the group to study the delivery of essential health services. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Hedy Sladovich, room MC3-607, telephone 202-473-7698, fax 202-522-1154, email address [hsladovich@worldbank.org](mailto:hsladovich@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The author may be contacted at [pkhaleghian@worldbank.org](mailto:pkhaleghian@worldbank.org). (43 pages)

### **2990. Ways Out of Poverty: Diffusing Best Practices and Creating Capabilities—Perspectives on Policies for Poverty Reduction**

Michael Klein  
(March 2003)

Fundamentally, poverty reduction is about bringing growth processes to poor areas. Because poor areas can benefit from technical and organizational innovations made elsewhere in the world, it is possible today to create productive jobs faster and in greater quantity than ever before. The

puzzle is what helps spread such “best practices.” Saving, investment, education, resources, and new technology are all needed—and fairly easy to obtain. What is hard to obtain are the institutions that allow these factors of production to be combined and translated into productive job creation. Firms are the key vehicles that spread best practices and productive jobs to areas where poor people live. Because we can never be sure which firm will be successful, it is necessary that new firms can enter markets, that standard firms are allowed to fail, and that good firms face few barriers to growth. This is the definition of competition, and competition is what selects good firms and thus drives the spread of best practice and productive jobs. Governments need to provide the framework in which capable firms can emerge. Yet, the right mix of state activity and how it best interacts with firms are not fully understood. Some selection mechanism, which allows for policy experiments and selects successful ones, is valuable for national, provincial, and local governments. Thus competition among jurisdictions and firms is an integral part of dynamic social systems that hold promise for creating wealth and ending poverty.

This paper—a product of the Private Sector Advisory Services Department—is part of a larger effort in the department to study private sector development and growth processes. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Fatima Shah, room I9-334, telephone 202-458-4846, fax 202-522-3480, email address [fsah@worldbank.org](mailto:fsah@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The author may be contacted at [mklein@worldbank.org](mailto:mklein@worldbank.org). (39 pages)

### **2991. Tenure Security and Land-Related Investment: Evidence from Ethiopia**

Klaus Deininger, Songqing Jin,  
Berhanu Adenew, Samuel Gebre-Selassie,  
and Berhanu Nega  
(March 2003)

The authors use a large data set from Ethiopia that differentiates tenure security and transferability to explore determinants of different types of land-related

investment and its possible impact on productivity. While they find some support for endogeneity of investment in trees, this is not the case for terraces. Transfer rights are unambiguously investment-enhancing. The large productivity effect of terracing implies that, even where households undertake investments to increase their tenure security, this may not be socially efficient. In Ethiopia, government action to increase tenure security and transferability of land rights can significantly enhance rural investment and productivity.

This paper—a product of Rural Development, Development Research Group—is part of a larger effort in the group to assess the impact of land policy on equity and productive development. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Maria Fernandez, room MC3-542, telephone 202-473-3766, fax 202-522-1151, email address [mfernandez2@worldbank.org](mailto:mfernandez2@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. Klaus Deininger may be contacted at [kdeininger@worldbank.org](mailto:kdeininger@worldbank.org). (28 pages)

## **2992. Market and Nonmarket Transfers of Land in Ethiopia: Implications for Efficiency, Equity, and Nonfarm Development**

Klaus Deininger, Songqing Jin, Berhanu Adenew, Samuel Gebre-Selassie, and Mulat Demeke  
(March 2003)

The authors use data from Ethiopia to empirically assess determinants of participation in land rental markets, compare these to those of administrative land reallocation, and make inferences on the likely impact of households' expectations regarding future redistribution. Results indicate that rental markets outperform administrative reallocation in terms of efficiency and poverty. Households who have part-time jobs in the off-farm sector are significantly more likely to expect land to be taken away from them through administrative means. Eliminating the scope for administrative land reallocation may thus be a precondition for more vigorous development of the off-farm sector.

This paper—a product of Rural Development, Development Research Group—is part of a larger effort in the group to

assess the impact of land policies on equity and productive development. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Maria Fernandez, room MC3-542, telephone 202-473-3766, fax 202-522-1151, email address [mfernandez2@worldbank.org](mailto:mfernandez2@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. Klaus Deininger may be contacted at [kdeininger@worldbank.org](mailto:kdeininger@worldbank.org). (29 pages)

## **2993. Dealing with the Coffee Crisis in Central America: Impacts and Strategies**

Panos Varangis, Paul Siegel, Daniele Giovannucci, and Bryan Lewin  
(March 2003)

Current coffee prices are at record lows and below the cost of production for many producers in Central America. Moreover, the coffee crisis is structural, and changes in supply and demand do not indicate a quick recovery of prices. So, coffee producers in Central America are facing new challenges—as are coffee laborers, coffee exporters, and others linked to the coffee sector. Coffee plays a major economic role in Costa Rica, El Salvador, Guatemala, Honduras, and Nicaragua. The coffee crisis is actually part of a broader rural crisis caused by weather shocks (such as Hurricane Mitch and droughts), low international agricultural commodity prices, and the global recession. These challenges call for new strategies for Central American countries aimed at broad-based sustainable development of their rural economies.

The authors deal with the impact of the coffee crisis and strategies to deal with it. They include an analysis of the international coffee situation and country-specific analyses. The authors explore options and constraints for increased competitiveness and diversification, and discuss social, environmental, and institutional dimensions of the crisis.

The authors conclude that there are specific solutions that can be pursued for the coffee sector. Some are already being applied, but more can be done in a more systematic way. Also, there is a need for safety nets to deal with the short-term impact of the crisis. Longer-term solutions are to be found in increased competitive-

ness and diversification in the context of broad-based sustainable rural economic development.

This paper—a product of Rural Development, Development Research Group—is part of a larger effort in the group to analyze instruments for protecting farmers against risks. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Panos Varangis, room MC5-785, telephone 202-473-3852, fax 202-522-1142, email address [pvarangis@worldbank.org](mailto:pvarangis@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. (76 pages)

## **2994. Options for Financing Lifelong Learning**

Miguel Palacios  
(March 2003)

How should lifelong learning be financed? Palacios attempts to answer the question by creating a framework for analyzing different education financing mechanisms in light of particular characteristics of lifelong learning. The framework compares the different financing alternatives on four dimensions: (1) who ultimately pays for the education, (2) who finances its immediate costs, (3) how payments are made, and (4) who collects the payments. The author uses specific characteristics of lifelong learning to determine which among the financing alternatives are most useful. The characteristics are that the individual should decide what and where to study, carry a significant part of the financial burden, and be encouraged to continue learning through all life stages.

Palacios analyzes the financing alternatives according to who ultimately pays for the education. Hence, the alternatives are classified either as cost-recovery or cost-subsidization alternatives. Cost-recovery alternatives include traditional loans, a graduate tax, human capital contracts, and income-contingent loans. Subsidization alternatives are those in which the state directly subsidizes institutions or in which the state gives vouchers to students. The author concludes that combining income-contingent loans and human capital contracts with vouchers is the most efficient and equitable method for financing lifelong learning.

The author discusses the role of governments and multilateral organizations in

improving the financing of lifelong learning. He assesses shifting toward cost-recovery alternatives, focusing on collection of payments, and aiming for the involvement of private capital as key issues that should be addressed to ensure that lifelong learning will be available for all equitably and efficiently.

This paper—a product of the Education Team, Human Development Network—is part of a larger effort in the network to support the analytic work in lifelong learning in the global knowledge economy. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Energy James, room G8-104, telephone 202-473-1756, fax 202-522-3233, email address [ejames2@worldbank.org](mailto:ejames2@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The author may be contacted at [palaciosm01@arden.virginia.edu](mailto:palaciosm01@arden.virginia.edu). (30 pages)

## 2995. Commodity Market Reform in Africa: Some Recent Experience

Takamasa Akiyama, John Baffes, Donald F. Larson, and Panos Varangis  
(March 2003)

Since the early 1980s, dramatic changes in export commodity markets, shocks associated with resulting price declines, and changing views on the role of the state have ushered in widespread reforms to agricultural commodity markets in Africa. The reforms significantly reduced government participation in the marketing and pricing of commodities. Akiyama, Baffes, Larson, and Varangis examine the background, causes, process, and consequences of these reforms and derive lessons for successful reforms from experiences in markets for four commodities important to Africa—cocoa, coffee, cotton, and sugar. The authors' commodity focus highlights the special features associated with these markets that affect the reform process. They complement the current literature on market reforms in Africa, where grain-market studies are more common. The authors suggest that the types of market interventions prior to reform are more easily classified by crop than by country. Consequently, there are significant commodity-specific differences in the initial conditions and in the outcomes of reforms related to these markets. But there are general lessons as well. The authors find

that the key consequences of reform have been significant changes in or emergence of marketing institutions and a significant shift of political and economic power from the public to the private sector. In cases where interventions were greatest and reforms most complete, producers have benefited from receiving a larger share of export prices. Additionally, the authors conclude that the adjustment costs of reform can be reduced in most cases by better understanding the detailed and idiosyncratic relationships between the commodity subsector, private markets, and public services. Finally, while there are significant costs to market-dependent reforms, experiences suggest that they are a necessary step toward a dynamic commodity sector based on private initiative. This is particularly true in countries and sectors where interventions were greatest and market-supporting institutions the weakest.

This paper—a product of Rural Development, Development Research Group—is part of a larger effort in the group to examine the consequences of agricultural policies. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Pauline Kokila, room MC3-604, telephone 202-473-3716, fax 202-522-1151, email address [pkokila@worldbank.org](mailto:pkokila@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The authors may be contacted at [jbaffes@worldbank.org](mailto:jbaffes@worldbank.org), [dlarson@worldbank.org](mailto:dlarson@worldbank.org), or [pvarangis@worldbank.org](mailto:pvarangis@worldbank.org). (48 pages)

## 2996. Bank Competition, Financing Obstacles, and Access to Credit

Thorsten Beck, Asli Demirgüç-Kunt, and Vojislav Maksimovic  
(March 2003)

Theory makes ambiguous predictions about the effects of bank concentration on access to external finance. Using a unique data base for 74 countries of financing obstacles and financing patterns for firms of small, medium, and large size, Beck, Demirgüç-Kunt, and Maksimovic assess the effects of banking market structure on financing obstacles and the access of firms to bank finance. The authors find that bank concentration increases financing obstacles and decreases the likelihood of receiving bank finance, with the impact decreasing in size. The relation of bank

concentration and financing obstacles is dampened in countries with well developed institutions, higher levels of economic and financial development, and a larger share of foreign-owned banks. The effect is exacerbated by more restrictions on banks' activities, more government interference in the banking sector, and a larger share of government-owned banks. Finally, it is possible to alleviate the negative impact of bank concentration on access to finance by reducing activity restrictions.

This paper—a product of Finance, Development Research Group—is part of a larger effort in the group to understand the effects of bank competition. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Kari Labrie, room MC3-456, telephone 202-473-1001, fax 202-522-1155, email address [klabrie@worldbank.org](mailto:klabrie@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The authors may be contacted at [tbeck@worldbank.org](mailto:tbeck@worldbank.org) or [ademirguckunt@worldbank.org](mailto:ademirguckunt@worldbank.org). (50 pages)

## 2997. Financial and Legal Institutions and Firm Size

Thorsten Beck, Asli Demirgüç-Kunt, and Vojislav Maksimovic  
(March 2003)

Beck, Demirgüç-Kunt, and Maksimovic investigate how a country's financial institutions and the quality of its legal system explain the size attained by its largest industrial firms in a sample of 44 countries. Firm size is positively related to the size of the banking system and the efficiency of the legal system. Thus, the authors find no evidence that firms are larger in order to internalize the functions of the banking system or to compensate for the general inefficiency of the legal system. But they do find evidence that externally financed firms are smaller in countries that have strong creditor rights and efficient legal systems. This suggests that firms in countries with weak creditor protections are larger in order to internalize the protection of capital investment.

This paper—a product of Finance, Development Research Group—is part of a larger effort in the group to understand the determinants of firm size. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC

20433. Please contact Kari Labrie, room MC3-456, telephone 202-473-1001, fax 202-522-1155, email address klabrie@worldbank.org. Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The authors may be contacted at [tbeck@worldbank.org](mailto:tbeck@worldbank.org) or [ademirguckunt@worldbank.org](mailto:ademirguckunt@worldbank.org). (46 pages)

### **2998. Does Micro-Credit Empower Women? Evidence from Bangladesh**

Mark M. Pitt, Shahidur R. Khandker, and Jennifer Cartwright  
(March 2003)

This paper examines the effects of men's and women's participation in group-based micro-credit programs on a large set of qualitative responses to questions that characterize women's autonomy and gender relations within the household. The data come from a special survey carried out in rural Bangladesh in 1998–99. The results are consistent with the view that women's participation in micro-credit programs helps to increase women's empowerment. Credit program participation leads to women taking a greater role in household decisionmaking, having greater access to financial and economic resources, having greater social networks, having greater bargaining power compared with their husbands, and having greater freedom of mobility. Female credit also tended to increase spousal communication in general about family planning and parenting concerns. The effects of male credit on women's empowerment were, at best, neutral, and at worse, decidedly negative. Male credit had a negative effect on several arenas of women's empowerment, including physical mobility, access to savings and economic resources, and power to manage some household transactions.

This paper—a product of Rural Development, Development Research Group—is part of a larger effort in the group to understand how the micro-credit program helps empower women. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Pauline Kokila, room MC3-604, telephone 202-473-3716, fax 202-522-1153, email address [pkokila@worldbank.org](mailto:pkokila@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. Shahidur

Khandker may be contacted at [skhandker@worldbank.org](mailto:skhandker@worldbank.org). (54 pages)

### **2999. Explaining Liberalization Commitments in Financial Services Trade**

Philipp Harms, Aaditya Mattoo, and Ludger Schuknecht  
(March 2003)

Harms, Mattoo, and Schuknecht examine the determinants of market access commitments in international financial services trade in the General Agreement on Trade in Services (GATS). Based on a theoretical model, they investigate empirically the role of domestic political economy forces, international bargaining considerations, and the state of complementary policy.

The empirical results confirm the relevance of the authors' model in explaining banking and (to a somewhat lesser degree) securities services liberalization commitments. The findings imply that those who seek greater access to developing country markets for financial services must do more to counter protectionism at home in areas of export interest for developing countries.

This paper—a product of Trade, Development Research Group—is part of a larger effort in the group to assess the implications of liberalizing trade in services. This research was supported in part by the U.K. Department for International Development. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Paulina Flewitt, room MC3-333, telephone 202-473-2724, fax 202-522-1159, email address [pflewitt@worldbank.org](mailto:pflewitt@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The authors may be contacted at [philipp.harms@unikonstanz.de](mailto:philipp.harms@unikonstanz.de), [amattoo@worldbank.org](mailto:amattoo@worldbank.org), or [ludger.schuknecht@ecb.int](mailto:ludger.schuknecht@ecb.int). (39 pages)

### **3000. International Climate Regime beyond 2012: Are Quota Allocation Rules Robust to Uncertainty?**

Franck Lecocq and Renaud Crassous  
(March 2003)

Bringing the United States and major developing countries to control their

greenhouse gas emissions will be the key challenge for the international climate regime beyond the Kyoto Protocol. But in the current quantity-based coordination, large uncertainties surrounding future emissions and future abatement opportunities make the costs of any commitment very difficult to assess *ex ante*, hence a strong risk that the negotiation will be stalled.

Lecocq and Crassous use a partial equilibrium model of the international allowance market to quantify the economic consequences of the main post-Kyoto quota allocation rules proposed in the literature and to assess how robust these consequences are to uncertainty on future population, economic, and emissions growth. They confirm that, regardless of the rule selected, the prices of allowances and the net costs of climate mitigation for all parties are very sensitive to uncertainty, and in some scenarios very large. This constitutes a strong barrier against adopting any of these schemes if no additional mechanism is introduced to limit the uncertainty on costs.

On the other hand, parties' preferred (least-cost) rules are essentially robust to uncertainty. And although these preferences differ across countries, the authors' analysis suggest some bargaining is possible if developing countries make a commitment and join the allowance market earlier in exchange for tighter quotas in the North. This underscores the importance of the rules governing the entry of new parties into the coordination. But the magnitude of the win-win potential strongly depends on how different abatement costs are assumed to be between industrial and developing countries, and on how long that gap is assumed to persist.

This paper—a product of Infrastructure and Environment, Development Research Group—is part of a larger effort in the group to assess policies for mitigating climate change. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Viktor Soukhanov, room MC2-205, telephone 202-473-5721, fax 202-522-3230, email address [vsoukhanov@worldbank.org](mailto:vsoukhanov@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The authors may be contacted at [flecocq@worldbank.org](mailto:flecocq@worldbank.org) or [crassous@centre-cired.fr](mailto:crassous@centre-cired.fr). (39 pages)



### 3001. An Introduction to Financial and Economic Modeling for Utility Regulators

Antonio Estache, Martín Rodríguez  
Pardina, José María Rodríguez,  
and Germán Sember  
(March 2003)

The most effective regulators in developing countries are following remarkably similar approaches. The main common element across "best practice" countries is the use of relatively simple quantitative models of operators' behavior and constraints to measure the impact of regulatory decisions on some key financial and economic indicators of concern to the operators, the users, and the government. The authors provide an introduction to the design and use of these models. They draw on lessons from international experience in industrial and developing countries in ordinary or extraordinary revisions and in the context of contract renegotiations.

Simplifying somewhat, these models force regulators to recognize that, in the long run, private operators need to at least cover their opportunity cost of capital, including the various types of risks specific to the country, the sector, or the projects with which they are involved. Because these variables change over time, scheduled revisions are needed to allow for adjustments in the key determinants of the rate of return of the operator. These revisions are a recognition of the fact that all these determinants—tariffs, subsidies, quality, investments, and other service obligations—are interrelated and jointly determine the rate of return. At every revision, the rules of the game for the regulator are exactly the same: to figure out the changes in the cost of capital and to adjust the variables driving the rate of return to ensure that it continues to be consistent with the cost of capital.

If they can draw on reasonable data, these models do everything any financial model would do for the day-to-day management of a company but take a longer term view and include an explicit identification of the key regulatory instruments. They can monitor the consistency between cash flow generated by the business on the one hand and debt service and operational expense needs on the other to address the main concerns of the operators. They can also account for a large number of key

policy factors including access and affordability concerns for various types of consumers. They generally account for the sensitivity of operators and users to various regulatory design options.

This paper—a joint product of the Finance and Private Sector Development Division, World Bank Institute, and the Office of the Vice President, Private Sector Development and Infrastructure Vice Presidency—is part of a larger effort in the Bank to increase understanding of infrastructure regulation. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Gabriela Chenet-Smith, room J3-304, telephone 202-473-6370, fax 202-676-9874, email address [gchenet@worldbank.org](mailto:gchenet@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. Antonio Estache may be contacted at [aestache@worldbank.org](mailto:aestache@worldbank.org). (26 pages)

### 3002. Information-Based Instruments for Improved Urban Management

Uwe Deichmann, Somik V. Lall, Ajay Suri,  
and Pragma Rajoria  
(March 2003)

The task of urban managers is to ensure the provision of basic urban services, such as water, waste removal, security, transport, and an environment conducive to economic activity, while maintaining fiscal sustainability of city operations. City managers in developing countries face increasing pressure in achieving these goals because of rapid urbanization, the larger responsibilities following decentralization, and the economic challenges of globalization. Based on experience in Bangalore, India, the authors argue that effective, forward-looking urban management requires a much better information infrastructure than is currently available in most cities.

This paper—a product of Infrastructure and Environment, Development Research Group—is part of a larger program to improve urban management through the collection, use, and public disclosure of spatially detailed information and analytic methods. The study was jointly funded by the World Bank and the U.K. DFID's Urban Knowledge Generation and Toolkits Program. Copies of the paper are

available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Yasmin D'Souza, room MC2-622, telephone 202-473-1449, fax 202-522-3230, email address [ydsouza@worldbank.org](mailto:ydsouza@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The authors may be contacted at [udeichmann@worldbank.org](mailto:udeichmann@worldbank.org), [slall@worldbank.org](mailto:slall@worldbank.org), or [sds@nda.vsnl.net.in](mailto:sds@nda.vsnl.net.in). (32 pages)

### 3003. The Investment Climate and the Firm: Firm-Level Evidence from China

Mary Hallward-Driemeier, Scott  
Wallsten, and Lixin Colin Xu  
(March 2003)

The importance of a country's "investment climate" for economic growth has recently received much attention. Hallward-Driemeier, Wallsten, and Xu address the general lack of appropriate data for measuring the investment climate and its effects. The authors use a new survey of 1,500 Chinese enterprises in five cities to more precisely define and measure components of the investment climate, highlight the importance of firm-level data for rigorous analysis of the investment climate, and investigate empirically the effects of this comprehensive set of measures on firm performance in China. Overall, their firm-level analysis reveals that the main determinants of firm performance in China are international integration, entry and exit, labor market issues, technology use, and access to external finance.

This paper—a product of Investment Climate, Development Research Group—is part of a larger effort in the group to understand the investment climate using firm-level datasets. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Paulina Sintim-Aboagye, room MC3-422, telephone 202-473-7644, fax 202-522-1155, email address [psintimaboagye@worldbank.org](mailto:psintimaboagye@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The authors may be contacted at [mhallward@worldbank.org](mailto:mhallward@worldbank.org), [swallsten@worldbank.org](mailto:swallsten@worldbank.org), or [lxu1@worldbank.org](mailto:lxu1@worldbank.org). (49 pages)

### 3004. Institutions, Trade, and Growth: Revisiting the Evidence

David Dollar and Aart Kraay  
(March 2003)

Several recent papers have attempted to identify the partial effects of trade integration and institutional quality on long-run growth using the geographical determinants of trade and the historical determinants of institutions as instruments. Dollar and Kraay show that many of the specifications in these papers are weakly identified despite the apparently good performance of the instruments in first-stage regressions. Consequently, they argue that the cross-country variation in institutions, trade, and their geographical and historical determinants is not very informative about the partial effects of these variables on long-run growth.

This paper—a product of Investment Climate, Development Research Group—is part of a larger effort in the group to study institutions and development. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Anna Bonfield, room MC3-354, telephone 202-473-1248, fax 202-522-3518, email address [abonfield@worldbank.org](mailto:abonfield@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The authors may be contacted at [ddollar@worldbank.org](mailto:ddollar@worldbank.org) or [akraay@worldbank.org](mailto:akraay@worldbank.org). (29 pages)

### 3005. Vouchers for Basic Education in Developing Countries: A Principal-Agent Perspective

Varun Gauri and Ayesha Vawda  
(March 2003)

Voucher programs consist of three simultaneous reforms: (1) allowing parents to choose schools, (2) creating intense incentives for schools to increase enrollment, and (3) granting schools management autonomy to respond to demand. As a result, voucher advocates and critics tend to talk past each other. A principal-agent framework clarifies the argument for education vouchers. Central findings from the literature, including issues related to variance in the performance measure, risk aversion, the productivity of more effort, multiple tasks, and the value of monitor-

ing are found relevant for an analysis of vouchers. An assessment of findings on voucher programs in industrial countries, as well as a review of voucher or quasi-voucher experiences in Bangladesh, Chile, Colombia, Côte d'Ivoire, and the Czech Republic support the usefulness of the analytic framework. Gauri and Vawda conclude that vouchers for basic education in developing countries can enhance outcomes when they are limited to modest numbers of poor students in urban settings, particularly in conjunction with existing private schools with surplus capacity. The success of more ambitious voucher programs depends on an institutional infrastructure challenging to industrial and developing countries alike.

This paper—a joint product of Public Services, Development Research Group, and the Education Team, Human Development Network—is a background paper for the 2004 *World Development Report*. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Hedy Sladovich, room MC3-607, telephone 202-473-7698, fax 202-522-1154, email address [hsladovich@worldbank.org](mailto:hsladovich@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The authors may be contacted at [vgauri@worldbank.org](mailto:vgauri@worldbank.org) or [avawda@worldbank.org](mailto:avawda@worldbank.org). (23 pages)

### 3006. Social Rights and Economics: Claims to Health Care and Education in Developing Countries

Varun Gauri  
(March 2003)

Gauri analyzes contemporary rights-based and economic approaches to health care and education in developing countries. He assesses the foundations and uses of social rights in development, outlines an economic approach to improving health and education services, and then highlights the differences, similarities, and the hard questions that the economic critique poses for rights. The author argues that the policy consequences of rights overlap considerably with a modern economic approach. Both the rights-based and the economic approaches are skeptical that electoral politics and de facto market rules provide sufficient accountability for the effective and equitable pro-

vision of health and education services, and that further intrasectoral reforms in governance, particularly those that strengthen the hand of service recipients, are needed. There remain differences between the two approaches. Whether procedures for service delivery are ends in themselves, the degree of disaggregation at which outcomes should be assessed, the consequences of long-term deprivation, metrics used for making tradeoffs, and the behavioral distortions that result from subsidies are all areas where the approaches diverge. Even here, however, the differences are not irreconcilable, and advocates of the approaches need not regard each other as antagonists.

This paper—a product of Public Services, Development Research Group—is a background paper for the 2004 *World Development Report*. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Hedy Sladovich, room MC3-607, telephone 202-473-7698, fax 202-522-1154, email address [hsladovich@worldbank.org](mailto:hsladovich@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The author may be contacted at [vgauri@worldbank.org](mailto:vgauri@worldbank.org). (19 pages)

### 3007. The Impact of Urban Spatial Structure on Travel Demand in the United States

Antonio M. Bento, Maureen L. Cropper,  
Ahmed Mushfiq Mobarak, and Katja Vinha  
(March 2003)

Bento, Cropper, Mobarak, and Vinha combine measures of urban form and public transit supply for 114 urbanized areas with the 1990 Nationwide Personal Transportation Survey to address two questions: (1) How do measures of urban form, including city shape, road density, the spatial distribution of population, and jobs-housing balance affect the annual miles driven and commute mode choices of U.S. households? (2) How does the supply of public transportation (annual route miles supplied and availability of transit stops) affect miles driven and commute mode choice?

The authors find that jobs-housing balance, population centrality, and rail miles supplied significantly reduce the probability of driving to work in cities with some rail transit. Population centrality and



jobs-housing balance have a significant impact on annual household vehicle miles traveled (VMT), as do city shape, road density, and (in rail cities) annual rail route miles supplied. The elasticity of VMT with respect to each variable is small, on the order of 0.10–0.20 in absolute value. However, changing several measures of form simultaneously can reduce annual VMT significantly. Moving the sample households from a city with the characteristics of Atlanta to a city with the characteristics of Boston reduces annual VMT by 25 percent.

This paper—a product of Infrastructure and Environment, Development Research Group—is part of a larger effort in the group to examine factors affecting travel behavior. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Viktor Soukhanov, room MC2-521, telephone 202-473-5721, fax 202-522-3230, email address [vsoukhanov@worldbank.org](mailto:vsoukhanov@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. Maureen Cropper

may be contacted at [mcropper@worldbank.org](mailto:mcropper@worldbank.org). (54 pages)

### **3008. Technology, Computers, and Wages: Evidence from a Developing Economy**

Chris N. Sakellariou and Harry A. Patrinos (March 2003)

Increasing returns to schooling and rising inequality are well documented for industrial countries and for some developing countries. The growing demand for skills is associated with recent technological developments. Sakellariou and Patrinos argue that computers in the workplace represent one manifestation of these changes. Research in the United States and industrial countries documents a premium for computer use. But there is recent evidence suggesting that computer skills by themselves do not command a wage premium. The authors review the literature and use data from a survey of higher education graduates in Vietnam.

The results support the unobserved heterogeneity explanation for computer wage premiums. They suggest that computers may make the productive workers even more productive. However, given the scarcity of computers in low-income countries, an operational strategy of increasing computer availability and skills would seem to offer considerable hope for increasing the incomes of the poor.

This paper—a product of the Education Sector Unit, Latin America and the Caribbean Region—is part of a larger effort in the region to document the determinants of earnings. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Nelly Vergara, room I7-004, telephone 202-473-0432, fax 202-522-3135, email address [nvergara@worldbank.org](mailto:nvergara@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The authors may be contacted at [acsake@ntu.edu.sg](mailto:acsake@ntu.edu.sg) or [hpatrinos@worldbank.org](mailto:hpatrinos@worldbank.org). (23 pages)